

eurac
research



Activity Report
2016/17

Eurac Research

Research is our passion. It is our contribution to addressing issues closely connected with people's lives, their health, and their environment.

We are committed to giving concrete answers to complex questions. We work in teams to have a wider perspective: superseding divisions among disciplines helps to find alternative solutions.

We often develop solutions for regional problems which can then be applied around the globe. As such, we are linked to other research networks all over the world and have partners in more than 50 countries on five continents. We collaborate with European institutions with international organisations, such as the United Nations Environment Programme (UNEP), as well as with several space agencies.

Forschen ist unsere Leidenschaft. Mit Neugier, Begeisterung, Mut und Ausdauer stellen wir uns den Herausforderungen unserer Zeit: Menschen brauchen Gesundheit, funktionierende politische Systeme, eine intakte Umwelt. Mit dem Ziel vor Augen das zukünftige Leben der Menschen zu verbessern, suchen wir Antworten auf komplexe Fragen - in Teams und Disziplinen übergreifend. Oft entwickeln wir konkrete Lösungen für regionale Probleme, die dann auch andernorts Anwendung finden. In weltweite Wissenschaftsnetze eingebunden, forschen wir mit Partnern aus über 50 Ländern auf 5 Kontinenten. Wir arbeiten eng mit EU-Institutionen, internationalen Organisationen wie dem Umweltprogramm der Vereinten Nationen (UNEP) und mehreren Weltraumorganisationen zusammen.

La ricerca è la nostra passione. È così che diamo il nostro contributo a questioni che riguardano da vicino la vita delle persone, la loro salute, l'ambiente in cui vivono.

Con i nostri studi ci impegniamo a dare risposte concrete a domande complesse. Lavoriamo in team per avere una visione più ampia e perché superare le divisioni tra discipline aiuta a trovare soluzioni alternative.

Spesso, in risposta a problemi regionali, sviluppiamo soluzioni concrete che possono essere applicate a livello globale. Abbiamo partner in più di 50 paesi sparsi nei cinque continenti. Lavoriamo con istituzioni europee, organizzazioni internazionali come il programma delle Nazioni unite per l'ambiente (UNEP), e agenzie spaziali di diversi paesi.

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Openness and Interdisciplinarity Face to Face with Director Stephan Ortner

25 years of Eurac Research, 21 years for you as director. From your point of view, how has South Tyrol changed for the research centre, and how has the centre changed South Tyrol?

When the centre was founded we almost had to apologize for doing research and not producing anything in industry or agriculture. Today the value of research is recognized by society and in part we contributed to this change. On the one hand, we have studied complex and relevant issues for the territory. On the other hand, thanks also to the activities for schools and students, we have taken science into the living room of almost every home.

Thanks to the arrival of researchers and their families from abroad, Bolzano has become a more open and colourful city. In the meantime, Eurac Research has consolidated: after years of political distrust, today our skills are especially requested for more sensitive issues.

«We have taken science into the living room of almost every home»

What were the highlights of this journey?

For example, we focused on renewable energies when the topic was still not fashionable. With foresight we also recognized the importance of biomedical research for the South Tyrolean healthcare system. Thanks to the branch offices we have also put out feelers in other regions. And of course, there are infrastructures, of which now stands out the Technology Park. The extreme environment simulator will be our flagship.

Aspirations for the future?

More interdisciplinarity. The most important issues for our future can be resolved only if we stop thinking in categories. I also hope that Eurac Research will continue to contribute to the development of the local and European society. And that ever more brilliant minds choose South Tyrol as their new home.

Excellence and Collaboration with Companies Face to Face with President Roland Psenner

Prior to becoming president of Eurac Research in 2015, your career took place at the University of Innsbruck. Seen from the outside, how has the research centre changed South Tyrol?

From my perspective, the foundation of Eurac Research marked the beginning of a substantial transformation. Before, the smartest young people were sent to study north or south, hoping they would return. Often it did not happen: many gifted young people stayed in the places they were trained and where they found interesting job opportunities. Thanks to Eurac Research - and to the university that sprouted from Eurac Research - today South Tyrol is also an attractive destination for researchers.

How do you measure the success of a research centre like Eurac Research?

Based on the two poles that characterize our work: on the one hand scientific excellence, on the other the benefits for South Tyrol. As for the first point, we operate in international context and we are judged according to the same criteria as everyone else. For example, I am very happy because three quarters of our articles have been published in the most authoritative magazines. There are many areas in which, through our research, we direct the scientific path. Just to name a few: the CHRIS Study, the long-term ecological research in Mazia Valley, mummy research, risk management or emergency medicine in the mountains. As for local relevance, our key themes speak for themselves: minorities, languages, regional development, federalism and alpine environment.

«Three quarters of our articles have been published in the most authoritative magazines»

Aspirations for the future?

A very important project for South Tyrol is the Technology Park. Here, the link between research and industry has to spark. Eurac Research is best prepared for this step - I hope that companies are open to collaboration as well. I hope that with time South Tyrol will also be perceived from the outside as an important hub for research.

Offenheit und Interdisziplinarität **Im Gespräch mit Direktor Stephan Ortner**

25 Jahre Eurac Research, 21 Jahre sind Sie Direktor; von innen betrachtet: Was hat sich in Südtirol durch und für das Forschungsinstitut verändert?

Vor 25 Jahren musste man sich hier noch fast entschuldigen, wenn man forschte, statt in einem produktiven Bereich tätig zu sein. Heute ist Forschung gesellschaftlich anerkannt, dazu haben wohl auch wir etwas beigetragen. Nicht nur indem wir komplexe, für das Land wichtige Themen fundiert bearbeitet haben – auch durch die vielen Workshops und Veranstaltungen für Jugendliche, die dann zuhause davon berichten: So haben wir Forschung in viele Wohnzimmer gebracht.

Bozen ist zudem durch die Forscher und ihre Familien, die vielfach aus dem Ausland kommen, offener und bunter geworden. Und Eurac Research ist inzwischen etabliert: Nach Jahren, in denen die politische Macht uns eher misstrauisch gegenüberstand, sucht man heute gerade in sensiblen Fragen unsere Kompetenz.

»Wir haben Forschung in viele Wohnzimmer gebracht«

Was waren Meilensteine auf diesem Weg?

Etwa dass wir auf erneuerbare Energien gesetzt haben, als das noch nicht en vogue war. Früh waren wir auch der Meinung, dass die biomedizinische Forschung eine zunehmend wichtige Rolle für das Südtiroler Gesundheitssystem spielen würde. Durch die Außenbüros streckten wir unsere Fühler in andere Regionen aus. Und dann natürlich der Aufbau der Infrastruktur, jetzt zum Beispiel im Rahmen des Technologieparks. Ein Höhepunkt wird die Klimakammer sein.

Wünsche für die Zukunft?

Mehr Interdisziplinarität: Die spannenden Fragen der Zukunft lassen sich nur lösen, wenn man das Denken in Kategorien aufbricht. Auch wünsche ich mir, dass Eurac Research weiterhin beiträgt, Südtirol an Europa und an wichtige gesellschaftliche Entwicklungen anzubinden – und dass viele interessante Menschen aus dem Ausland durch uns hier eine neue Heimat finden.

Wissenschaftliche Exzellenz und Zusammenarbeit mit den Unternehmen **Im Gespräch mit Präsident Roland Psenner**

Bevor Sie 2015 Präsident von Eurac Research wurden, verlief ihre berufliche Karriere an der Universität Innsbruck; von außen betrachtet: Wie hat Südtirol sich durch das Forschungsinstitut verändert?

Aus meiner Sicht war die Gründung des Forschungsinstituts für Südtirol der Anfang eines grundlegenden Wandels. Vorher schickte man die intelligenten jungen Leute an eine Uni im Norden oder Süden und ging davon aus, dass sie schon zurückkommen würden. Was oft nicht eintrat: Viele begabte Leute blieben an den Orten, wo sie ihr Wissen erworben hatten und an attraktiven Arbeitsplätzen einsetzen konnten. Durch Eurac Research – und der aus ihr hervorgegangenen Unibz – ist Südtirol selbst so ein Ort geworden.

Wie misst sich der Erfolg eines Forschungsinstituts wie Eurac Research?

Anhand der zwei Pole, zwischen denen sich unsere Arbeit bewegt: Auf der einen Seite die wissenschaftliche Exzellenz – auf der anderen der Nutzen für Südtirol. Was den ersten Punkt betrifft, so stehen wir im internationalen Wettbewerb und werden nach den Kriterien beurteilt, die für alle gelten. Hier ist zum Beispiel sehr erfreulich, dass mehr als drei Viertel unserer Publikationen in den höchstrangigen Zeitschriften erscheinen. Es gibt viele Bereiche, wo wir den wissenschaftlichen Diskurs mitbestimmen: Ich nenne nur die CHRIS-Studie, die ökologische Langzeitforschung im Matschertal, die Risiko- und die Mumienforschung, die alpine Notfallmedizin. Was die Relevanz für das Land betrifft, sprechen unsere Forschungsschwerpunkte für sich: Minderheiten, Sprache, Regionalentwicklung, Föderalismus, alpine Umwelt ...

»Mehr als drei Viertel unserer Publikationen sind in den höchstrangigen Zeitschriften erschienen«

Wünsche für die Zukunft?

Ein Projekt, an dem für Südtirol sehr viel hängt, ist der Technologiepark. Hier muss der Funke zwischen Forschung und Industrie überspringen. Eurac Research ist darauf bestens vorbereitet – jetzt hoffe ich, dass die Unternehmen sich der Zusammenarbeit öffnen. Langfristig erwarte ich, dass Südtirol auch von außen als Forschungsstandort wahrgenommen wird.

Apertura e interdisciplinarietà **A tu per tu con Stephan Ortner, direttore**

25 anni di Eurac Research, 21 anni per lei come direttore. Dal suo punto di vista, cosa è cambiato in Alto Adige per e grazie al suo centro di ricerca?

Quando il centro è stato fondato dovevamo quasi scusarci per il fatto di fare ricerca e di non produrre qualcosa nell'industria o in agricoltura. Oggi il valore della ricerca è riconosciuto dalla società e anche noi abbiamo in parte contribuito a questo cambiamento. Da una parte abbiamo studiato temi complessi e rilevanti per il territorio. Dall'altra parte, anche grazie alle attività per le scuole, abbiamo portato la scienza nel soggiorno di molte case. Grazie all'arrivo da fuori di ricercatori con le loro famiglie Bolzano è diventata una città più aperta e colorata. Eurac Research nel frattempo si è consolidata: dopo anni di diffidenza da parte dei politici, oggi le nostre competenze vengono richieste specialmente per le questioni più sensibili.

«Abbiamo portato la scienza nel soggiorno di molte case»

Quali sono stati i momenti salienti di questo percorso?

Per esempio, ci siamo occupati di energie rinnovabili quando il settore ancora non era in voga. Con lungimiranza abbiamo anche riconosciuto che la ricerca biomedica sarebbe stata sempre più importante per il sistema sanitario altoatesino. Grazie agli uffici distaccati abbiamo attivato le nostre antenne anche in altre regioni. E poi naturalmente ci sono le infrastrutture, tra cui ora spicca il parco tecnologico. Il simulatore di ambienti estremi sarà il nostro fiore all'occhiello.

Auspici per il futuro?

Più interdisciplinarietà. Le questioni più rilevanti per il nostro futuro possono essere risolte solo se smettiamo di pensare per categorie. Mi auguro anche che Eurac Research continui a contribuire agli sviluppi della società locale ed europea. E che sempre più menti brillanti scelgano l'Alto Adige come loro nuova casa.

Eccellenza e collaborazione con le imprese **A tu per tu con Roland Psenner, presidente**

Prima di diventare presidente di Eurac Research nel 2015, la sua carriera professionale si è svolta all'Università di Innsbruck. Visto da fuori, come è cambiato l'Alto Adige attraverso il centro di ricerca?

Dal mio punto di vista la fondazione di Eurac Research ha segnato l'inizio di una trasformazione sostanziale. Prima i giovani più intelligenti venivano mandati a studiare verso nord o verso sud, con la speranza che tornassero. Spesso non capitava: molti ragazzi dotati rimanevano nei luoghi dove si erano formati e dove trovavano occasioni di lavoro interessanti. Grazie a Eurac Research – e all'università che da Eurac Research è gemmata – oggi anche l'Alto Adige è una destinazione attrattiva per i ricercatori.

Come si misura il successo di un centro di ricerca come Eurac Research?

In base ai due poli che caratterizzano il nostro lavoro: da una parte l'eccellenza scientifica, dall'altra i benefici per l'Alto Adige. Per quanto riguarda il primo punto, ci muoviamo in un contesto internazionale e lì veniamo giudicati secondo criteri validi per tutti. Per esempio sono molto soddisfatto perché tre quarti dei nostri articoli è stato pubblicato sulle riviste più autorevoli. Ci sono molti settori nei quali con le nostre ricerche indirizziamo il discorso scientifico. Cito solo lo studio CHRIS, la ricerca ecologica di lungo corso in val di Mazia, la ricerca sulle mummie, il management del rischio o la medicina d'emergenza in montagna. Per quanto riguarda la rilevanza locale, i nostri temi chiave parlano da soli: minoranze, lingue, sviluppo regionale, federalismo, ambiente alpino.

«Tre quarti dei nostri articoli è stato pubblicato sulle riviste più autorevoli»

Auspici per il futuro?

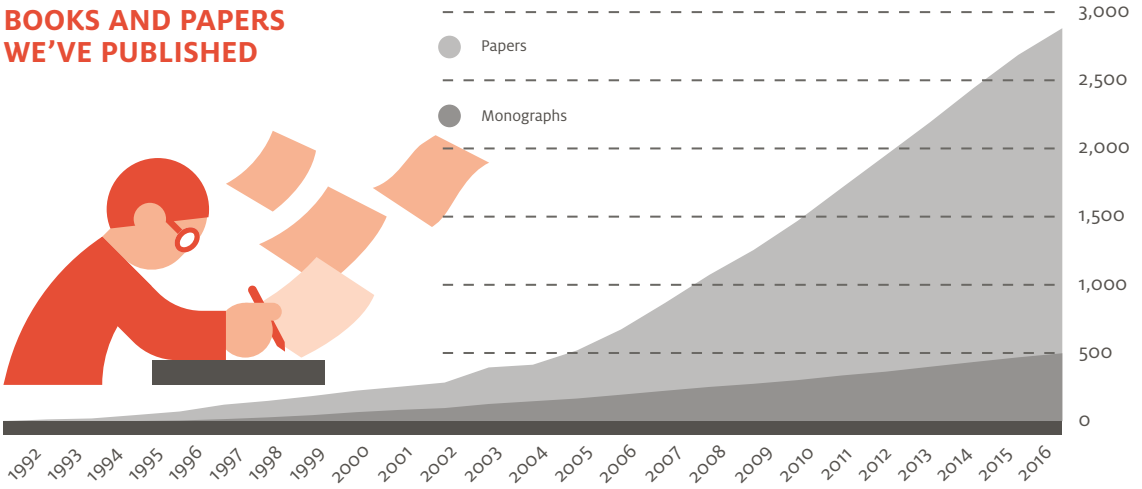
Un progetto che significa molto per l'Alto Adige è il parco tecnologico. Qui deve accendersi la scintilla tra la ricerca e l'industria. Eurac Research è preparata al meglio per questo passaggio – spero che anche le aziende siano aperte alla collaborazione. Spero che con il tempo l'Alto Adige venga percepito anche da fuori come un polo importante per la ricerca.



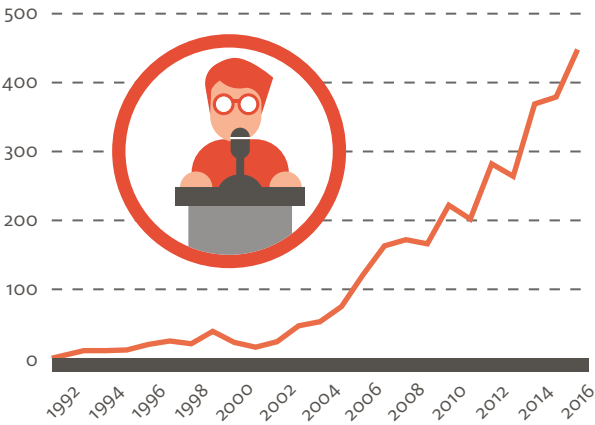
Special 25 Years

WHAT WE'VE ACHIEVED SO FAR

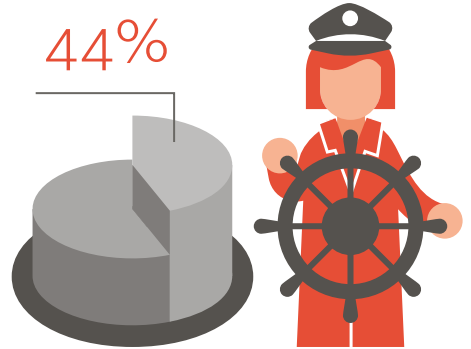
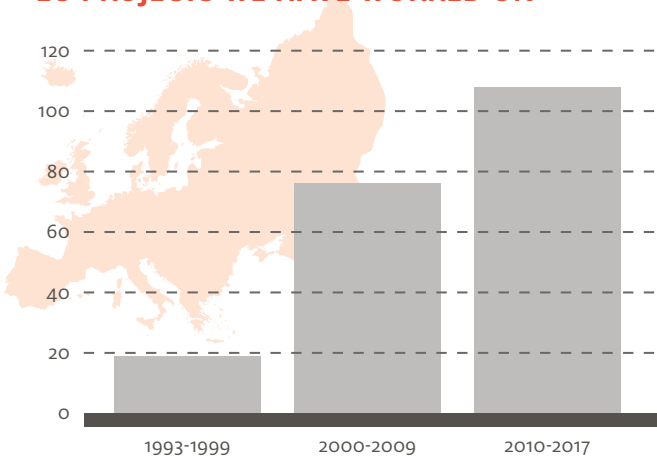
BOOKS AND PAPERS WE'VE PUBLISHED



LECTURES AND POSTERS WE'VE PRESENTED



EU PROJECTS WE HAVE WORKED ON

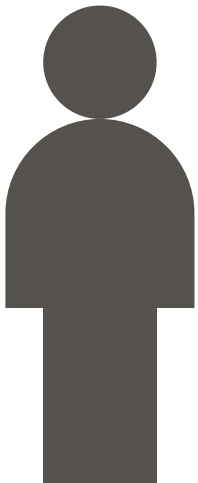


EU PROJECTS WE'VE LED

OUR EXPANDING COMMUNITY

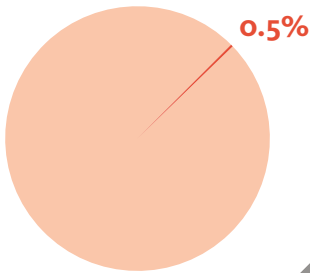
OUR PARTNERS ACROSS THE GLOBE

1992

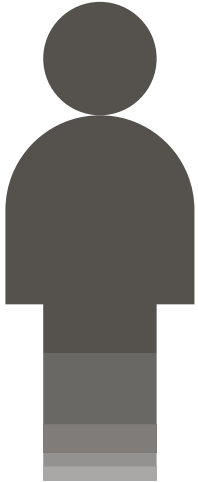


South Tyrol

Percentage of world's countries* with whom we've worked.
*total UN countries: 179

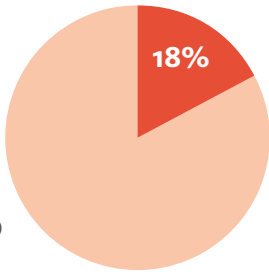


2008

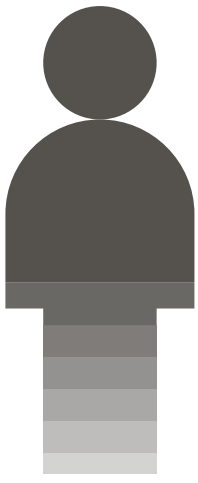


- Europe (25)
- Asia (5)
- Russia (2)
- North America (1)
- Africa (1)

Percentage of world's countries* with whom we've worked.
*total UN countries: 192

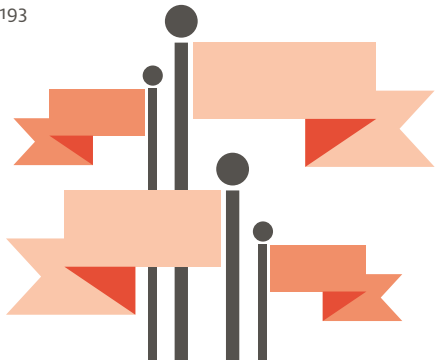
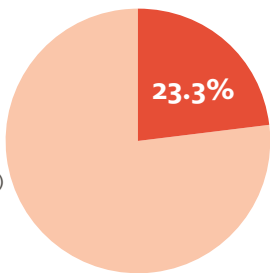


2017



- Europe (26)
- Africa (3)
- Asia (3)
- Middle East (3)
- South America (3)
- North & Central America (3)
- Russia (2)
- Australia (1)

Percentage of world's countries* with whom we've worked.
*total UN countries: 193



OUR EXPANDING COMMUNITY

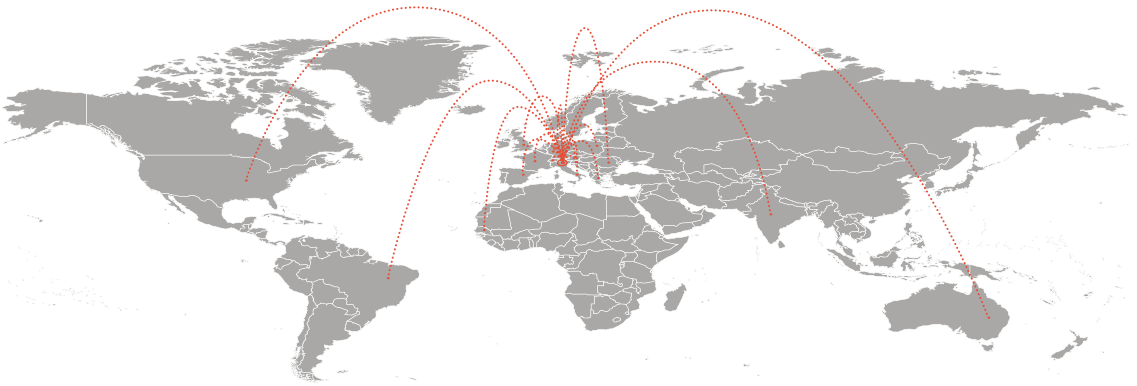
THE COUNTRIES OUR RESEARCHERS CALL HOME

25

1992



2008

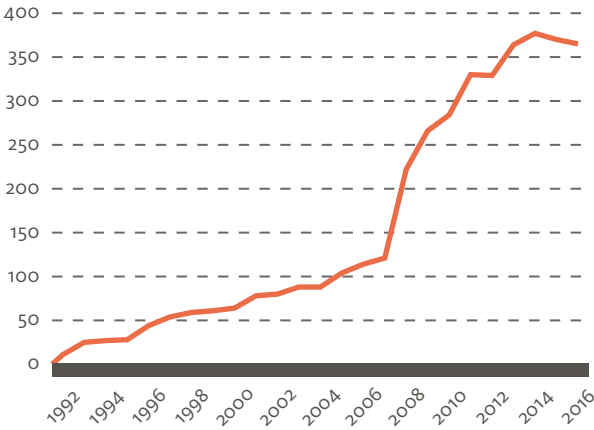


2016



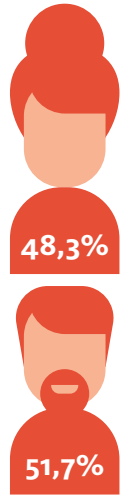
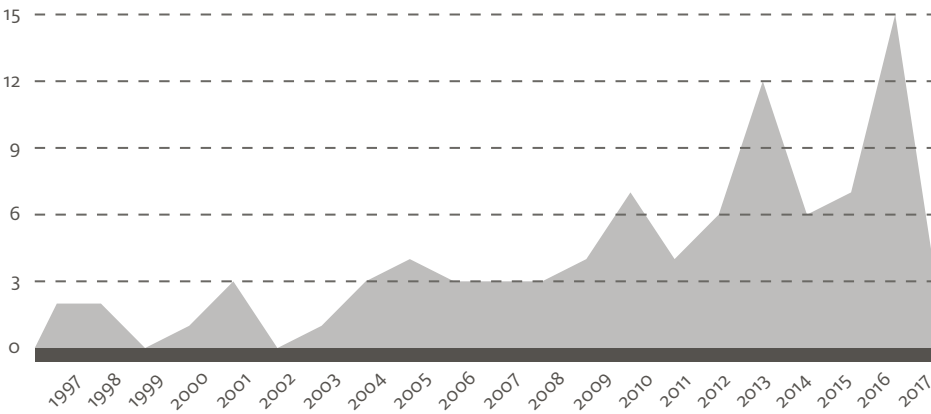
OUR EXPANDING COMMUNITY

HOW MANY WE NUMBER



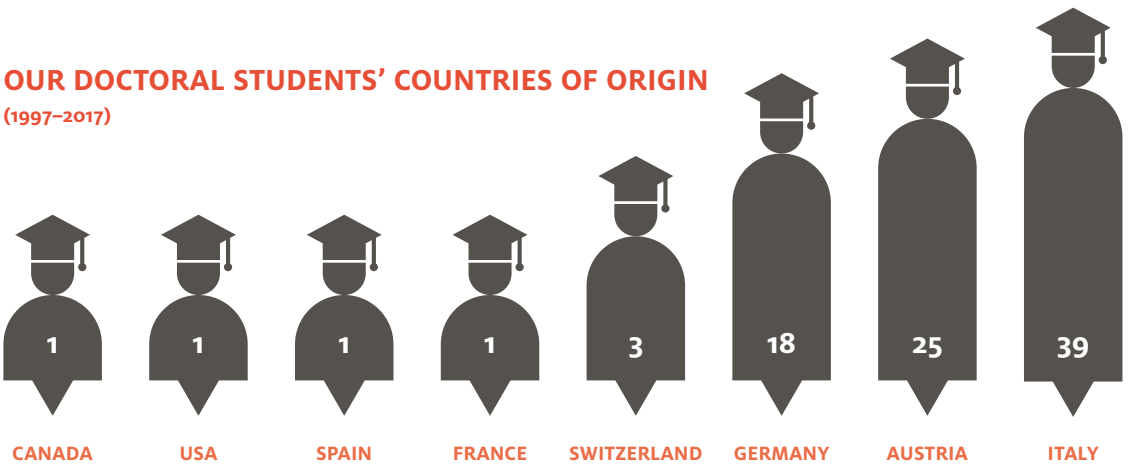
OUR AVERAGE AGE

THE DOCTORATES WE'VE ASSISTED



OUR DOCTORAL STUDENTS' COUNTRIES OF ORIGIN

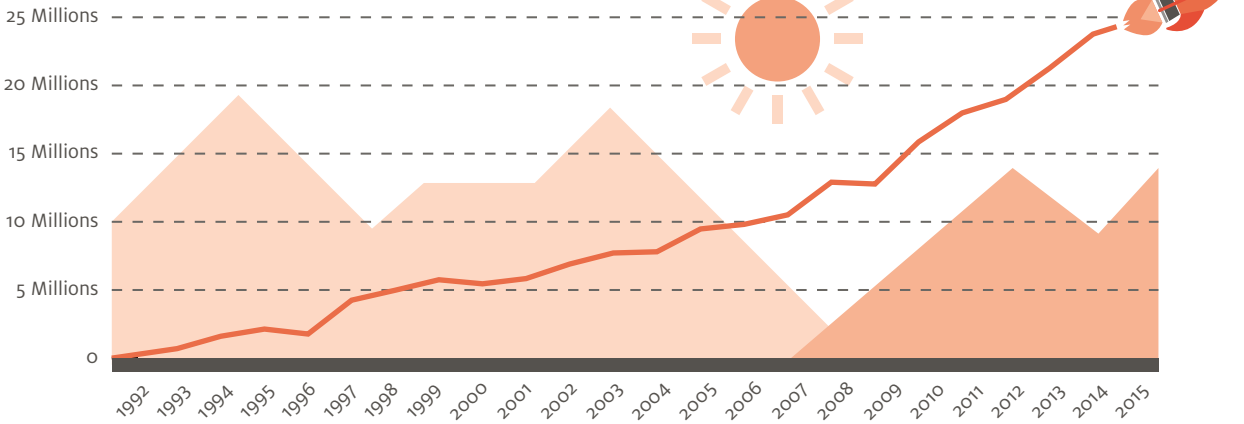
(1997-2017)



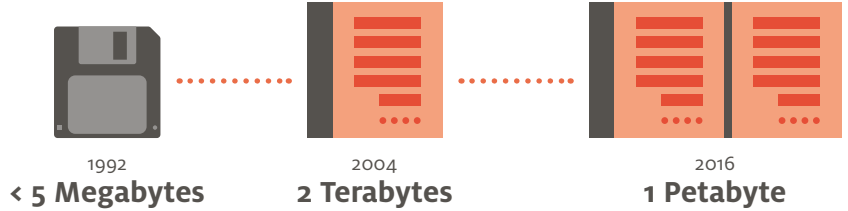
HOW OUR TOOLS HAVE DEVELOPED

25

BUSINESS ON THE RISE

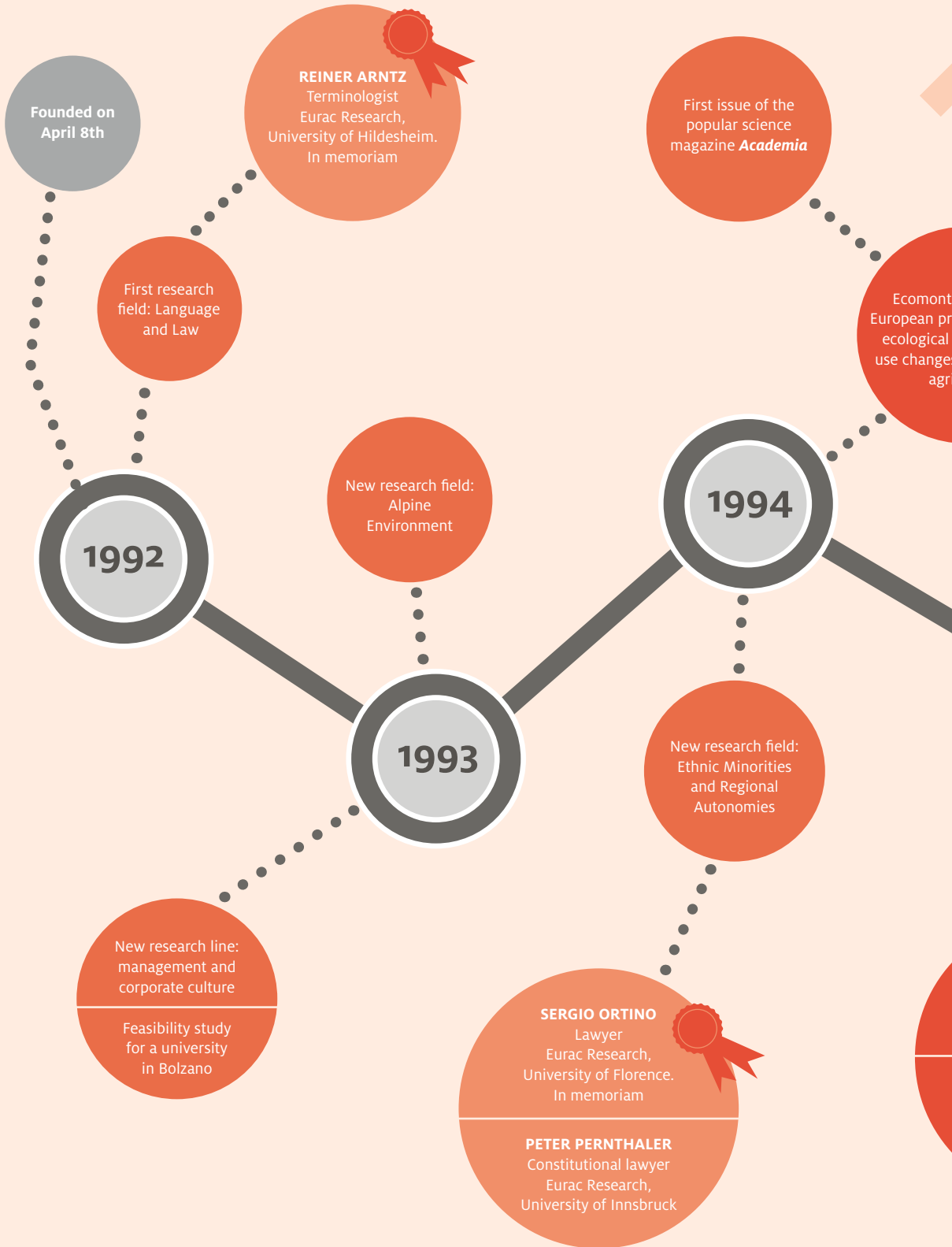


OUR EXPANDING SERVERS



THE LABS WE WORK IN

- Lab for Ancient DNA (2010)
- Molecular-genetic Medicine Laboratory (Established 2002, enlargement 2013)
- Biobank (2015)
- CHRIS Center* at the Hospital of Silandro (2011)
*Cooperative Health Research In South Tyrol
- Open Air Lab On Mountain Ecosystems in Mazia Valley (2008)
- Renon Receiving Station (2009)
- Soil Lab (2016)
- Solare PV Lab (2012)
- Multifunctional Facades Lab (2012)
- Accelerated Life Testing Lab (2012)
- Heat Pumps Lab (first facility 2010 - Enlargement 2018)
- Multi-Technological Photovoltaic Test Field at the Airport of Bolzano (2010)
- PV Integration Lab (2017)
- Energy Exchange Lab (2017)



People we are especially thankful to.



and Sustalp: projects about the effects of land s and mountain iculture

- FRANZ STREHL**
Economist
International Institute of Administrative Sciences
- HANS H. HINTERHUBER**
Economist
University of Graz
- MARCO MENEGUZZO**
Public management expert
University of Rome Tor Vergata

1996

New research field: Public Management

1995

1997

First visit from the Dalai Lama

First monograph published by Eurac Research: "Translation", written by Reiner Arntz

First European project as lead partner: SUSTALP, agriculture and biodiversity in the mountains

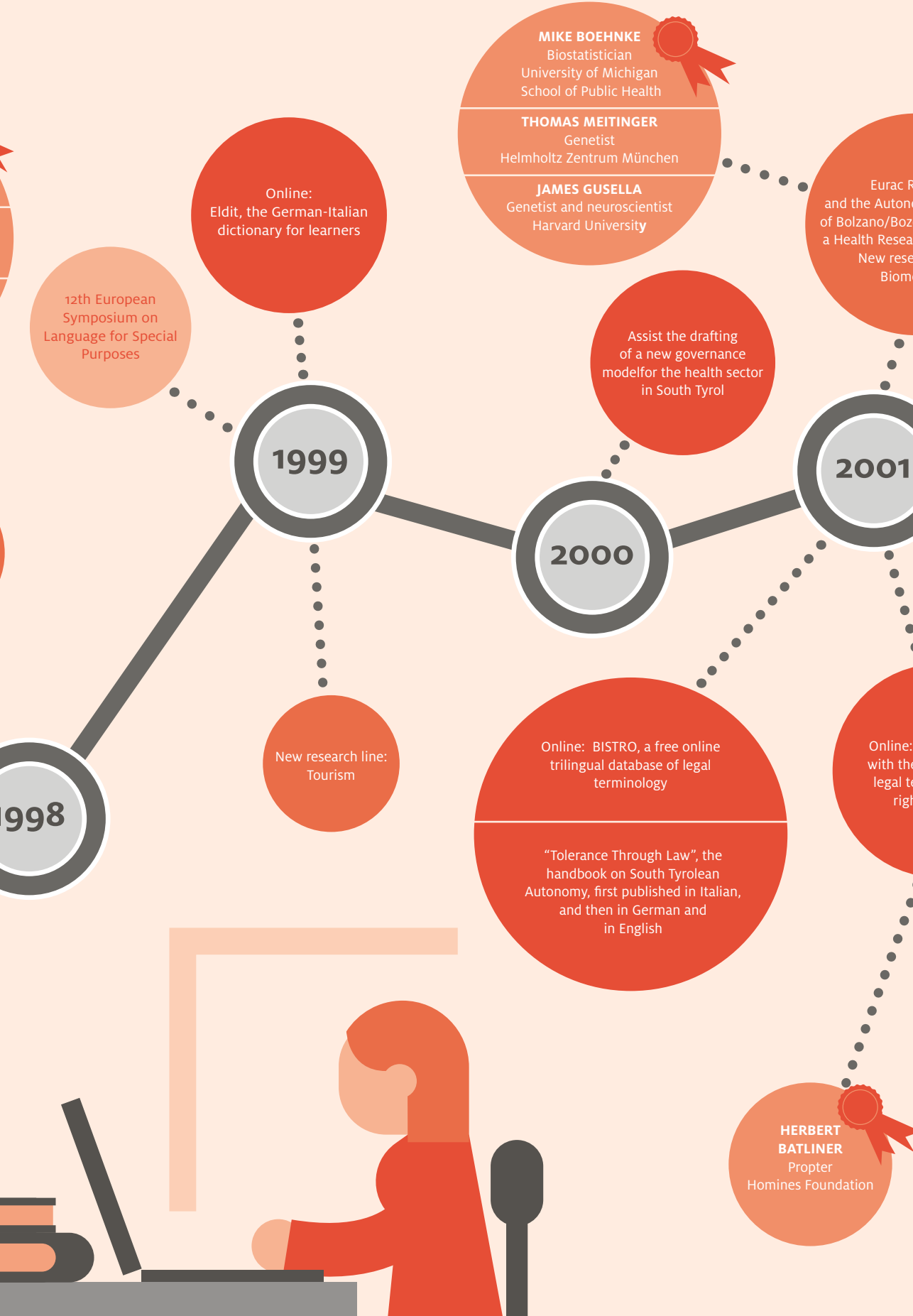
Reform of the South Tyrolean bilingualism exam

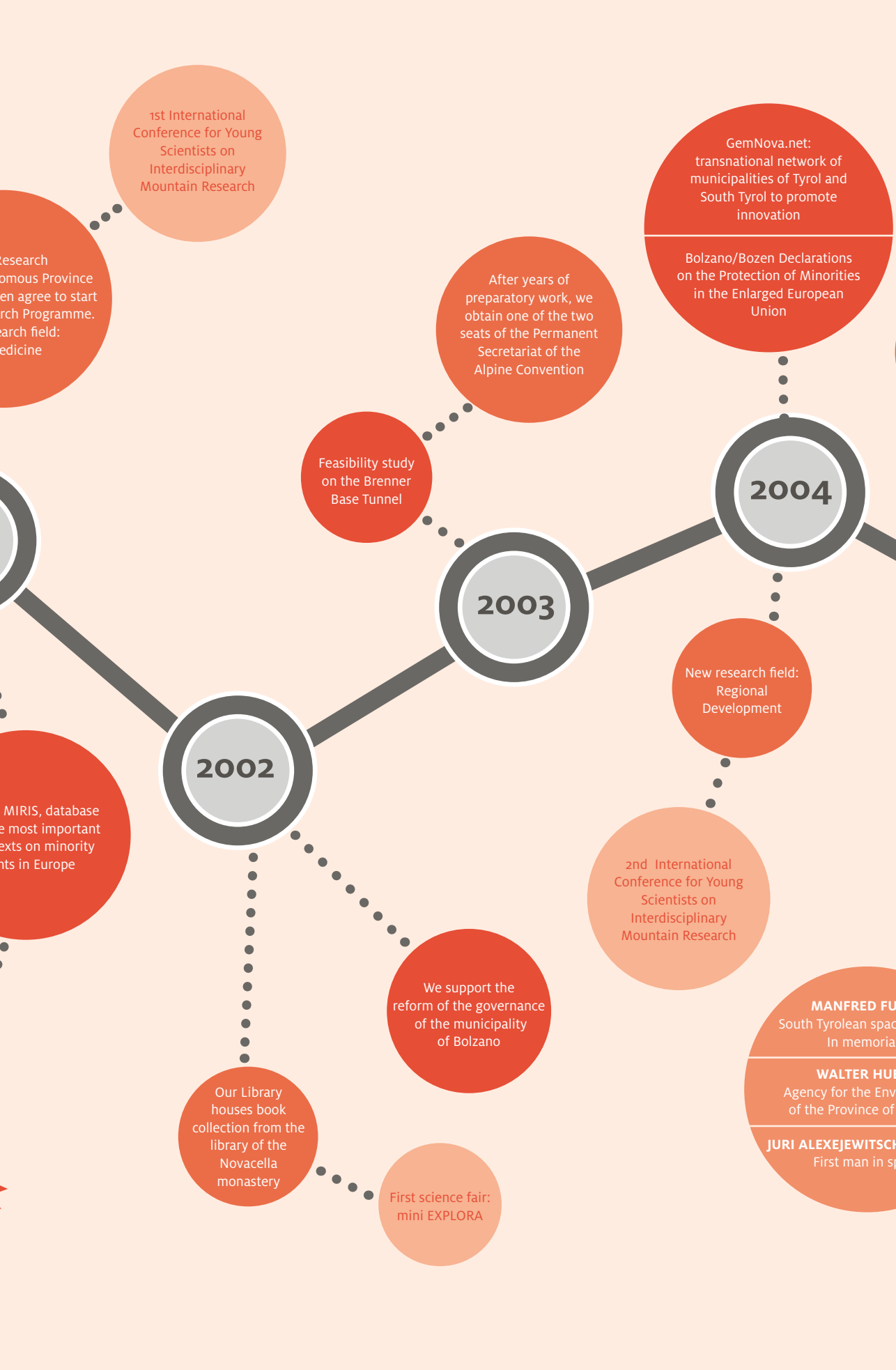
Book: "Package for Europe: Measures for Human Rights, Minority Protection, Cultural Diversity and Economic and Social Cohesion"

Tibetan Autonomy Statute, in cooperation with the Tibetan Government-in-Exile

HeadWater'98 Conference







2005

Second visit from the Dalai Lama

New research line: Renewable Energy

HANS-MARTIN HENNING
Fraunhofer
Institute for Solar Energy Systems

GERHARD HAUSLADEN
Technical
University of Munich

MARIO G. F. MOTTA
Scientific-technological
University Politecnico di Milano

REINHARD KOCH
European Center for Renewable
Energy, Güssing

Congress: Time Policies
and Quality of Life

27th Symposium of the
European Association of
Remote Sensing
Laboratories (Earsel)

Kolipsi I: first major
survey in South Tyrol on the
second-language skills of
high school students

Online: Korpus Südtirol,
first systematic database of
texts written in the variant
of the South Tyrolean
German

With the MIRICO
project, we study
human and minority
rights in the life cycle
of ethnic conflicts

2006

New research
horizons:
Remote Sensing

2007

First "Culture
Meets Economy"
International
Symposium

New research field:
Mummies

25

25 years of research
highlights,
events, institutional
milestones and
people we'd like
to thank.

EDUARD EGARTER VIGL
Pathologist
Hospital of Bolzano

ARTHUR AUFDERHEIDE
Paleopathologist
Mummy research pioneer

BRUNO HOSP
Former director of the
Museums of the Province
of Bolzano

WOLFGANG GAGARIN
Space

ANDREAS BERGER
Environment
Bolzano

WOLFGANG GAGARIN
Space

WOLFGANG GAGARIN
Space

2008

Rome
office
opens

Visit from
neuroscientist
Rita Levi Montalcini

Thanks to data from the MODIS
satellite, we developed operational
snow products at Alpine level with
the highest possible resolution

With EURASIA-Net we work for an exchange
between Europe and South Asia on human
rights and minority issues

"Mapping the Alps", atlas edited
by Springer Verlag with more
than 100 thematic maps about
social, economic and environ-
mental aspects

New research line:
Emergency
Mountain Medicine

Annual minority rights
lecture with Ambassador
Knut Vollebaek

Conference + Book:
OSCE-Bolzano-Bozen
Recommendations on National
Minorities in Inter-State Relations

Conference: Lowering
the Costs of Bureaucracy
for Businesses and Citizens

First Researchers'
Night

XIX Congress
of the Italian
Ecological Society (SITE)

1st Bolzano Mummy
Conference

Pristina
and Sarajevo
offices open

2009

Third visit from
the Dalai Lama

First multiannual
funding
programme with
the Province of
Bolzano

OTTO SAURER
Former local
government Councillor

GÜNTHER ANDERGASSEN
Head of department,
Province of Bolzano

Migralp project
on migration and integration
in South Tyrol

Founding member of Eurospan,
the European Special
Populations Research
Network



Office
in Brussels

21st Congress
Austrian Society
Agricultural Ecology
(ÖGA)
Conference: Social
Migration. Multi
Perspective
2nd Bolzano
Conference

PETER MAIR
Practitioner
University Clinic
in Innsbruck



MARCO MAGGIORINI
Practitioner
University Hospital of Zurich

KEN ZAFREN
Practitioner
Stanford University

We enter in the European
program Active and Assisted
Living with four research studies.

1st Climate Report about South Tyrol

Study on acute mountain
sickness on Ortles

The Alpine Trauma Registry
is born

2011

Ice Man Photoscan:
a high-resolution photo book
reveals each detail of Ötzi's body

Important discovery of genes
influencing lipids, including PCSK9
which is now the target of drugs that
are being seen to dramatically reduce
LDL-cholesterol levels
and cut heart disease.

Office opens
in Vienna

2010

First edition of "The Most
Beautiful Lawn" competition

International Gulbenkian
Foundation Prize for alpine
environmental research

Analysis on ancient DNA
sheds light on
Tutankhamun's
parents

CRISTINA BOGLIA
She tirelessly looked
for new funding
opportunities
and partnerships.
In memoriam

Conference with
Rebiya Kadeer,
President of the World
Uyghur Congress

2012

First Great Place to Work Award

Human Rights and Anti-discrimination Day

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conomics
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Mobility and
disciplinary
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Mummy
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Clearer timetable
transport in the alpi
the AlpInfoN

Our lawyers study how to
public participation in the
assessment in pilo

BioREGIO project: more
development for

Report for the Euro
regional as

INSPIRE project: we
multifunctional f
energy in t

2013

4th visit
from the
Dalai Lama

International Commission for
Mountain Emergency Medicine:
We draw up treatment
recommendations for hypothermic patients.

Genetic analysis of Ötzi reveals predisposition
for cardiovascular disease

Blood cells detected in Ötzi. Oldest blood sample
known to modern science.

We start the monitoring of the
landslide in Corvara

16th International
Conference of the
European Association for
Lexicography (EURALEX)

10th World Conference on High
Altitude Medicine and Physiology &
Mountain Emergency Medicine

We host the European Junior
Student Parliament





10th International Congress of the German Society for Anthropology (GfA)

We participate to the first Bolzano Innovation Festival

15th International Conference of Teachers of German as Foreign Language (IDT), organized with Unibz

Annual Meeting of the International Association of Centres for Federal Studies (IACFS)

3rd Bolzano Mummy Conference

...solutions for public ... areas thanks to ... let project.

...to regulate and promote ... environmental impact ... areas in China

...the sustainable regional ... the Carpathians

...European Council on ... ymmetry

...start to focus on ... façades to save ... buildings

PRIMO: new cataloging and research program for the library

Treatment guidelines for the European Resuscitation Council (ERC) for hypothermic avalanche victims

The Autonomous Province of Bolzano recognizes our linguists as official legal terminology consultants

Comparative studies on writing competencies of German mother tongue high school students

The study SilviAlp suggests how to adapt long alpine trekking routes for senior tourists

Through a non-invasive photographic technique, all of Ötzi's tattoos are revealed

2014

The SINFONIA project begins: in five years Bolzano will become a smart city

Manual: "Energy Efficiency Solutions for Historic Buildings" + prototype of a high energy performing window tested at the Weigh House in Bolzano

New ideas for touristic cycling on the 'via Claudia Augusta' path

HiresAlp project: Mazia becomes a candidate site for the NASA SMAP mission

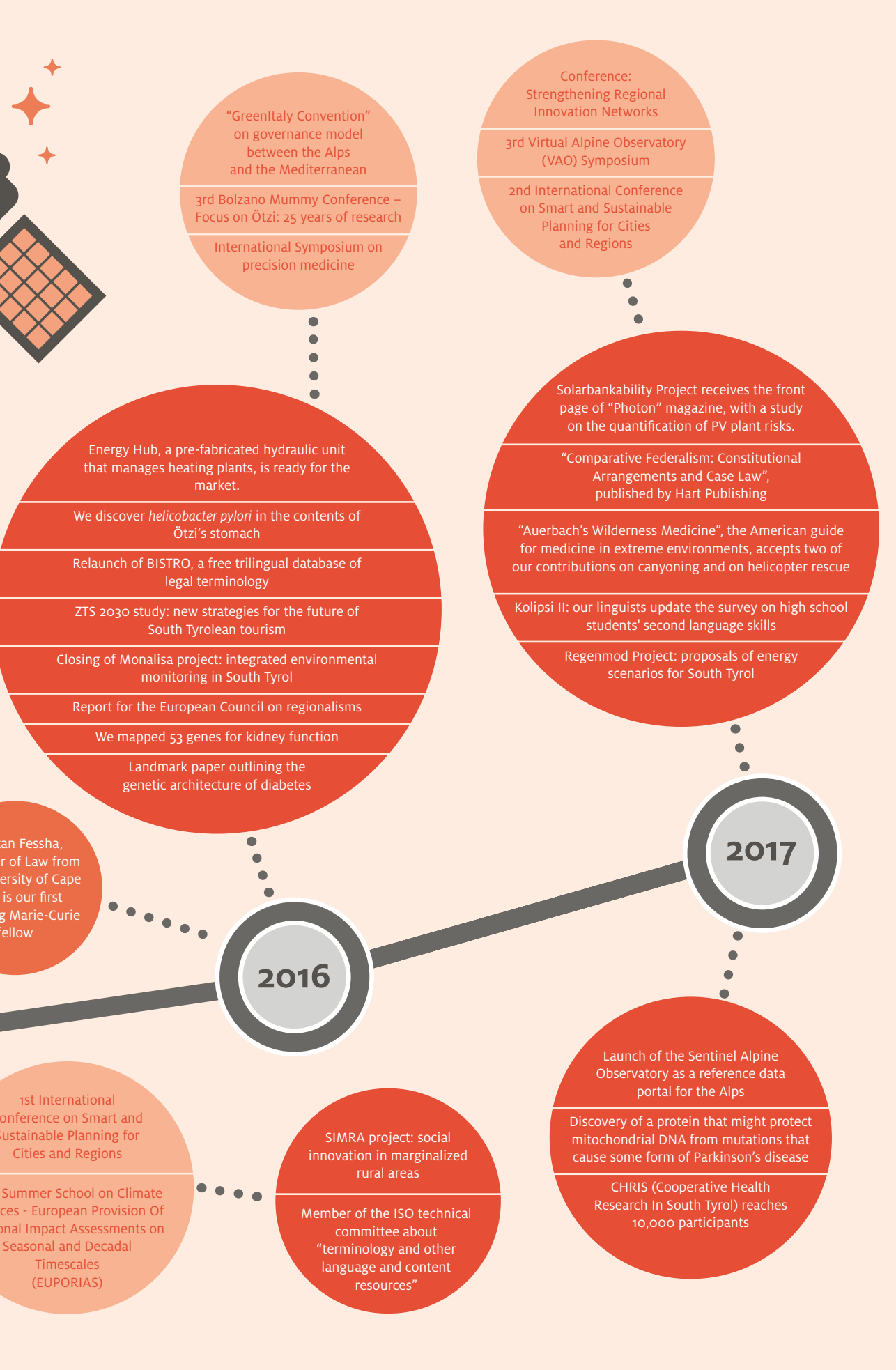
Zukunft 2030 study: we evaluate how to improve the future of some South Tyrol areas

2015

Biobank opens

Yonath ... Professor ... the Univ ... Town ... incoming ...

First ... Servi ... Regio ...



2016

1st International Conference on Smart and Sustainable Planning for Cities and Regions

Summer School on Climate Resilience - European Provision of National Impact Assessments on Seasonal and Decadal Timescales (EUPORIAS)

SIMRA project: social innovation in marginalized rural areas

Member of the ISO technical committee about "terminology and other language and content resources"

Launch of the Sentinel Alpine Observatory as a reference data portal for the Alps

Discovery of a protein that might protect mitochondrial DNA from mutations that cause some form of Parkinson's disease

CHRIS (Cooperative Health Research In South Tyrol) reaches 10,000 participants

2017

Jan Fesha, Professor of Law from University of Cape Town is our first incoming Marie-Curie Fellow

Energy Hub, a pre-fabricated hydraulic unit that manages heating plants, is ready for the market.

We discover *helicobacter pylori* in the contents of Ötzi's stomach

Relaunch of BISTRO, a free trilingual database of legal terminology

ZTS 2030 study: new strategies for the future of South Tyrolean tourism

Closing of Monalisa project: integrated environmental monitoring in South Tyrol

Report for the European Council on regionalisms

We mapped 53 genes for kidney function

Landmark paper outlining the genetic architecture of diabetes

Solarbankability Project receives the front page of "Photon" magazine, with a study on the quantification of PV plant risks.

"Comparative Federalism: Constitutional Arrangements and Case Law", published by Hart Publishing

"Auerbach's Wilderness Medicine", the American guide for medicine in extreme environments, accepts two of our contributions on canyoning and on helicopter rescue

Kolipsi II: our linguists update the survey on high school students' second language skills

Regenmod Project: proposals of energy scenarios for South Tyrol

"GreenItaly Convention" on governance model between the Alps and the Mediterranean

3rd Bolzano Mummy Conference – Focus on Ötzi: 25 years of research

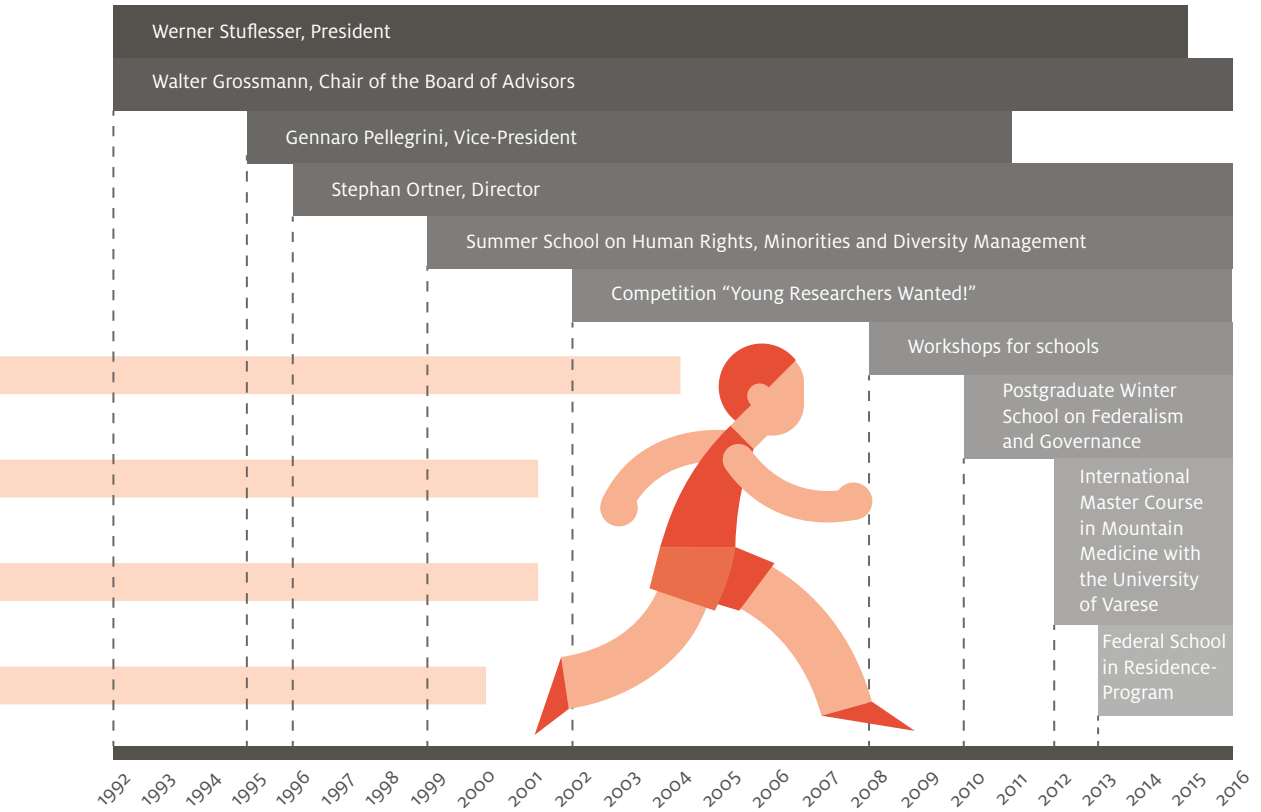
International Symposium on precision medicine

Conference: Strengthening Regional Innovation Networks

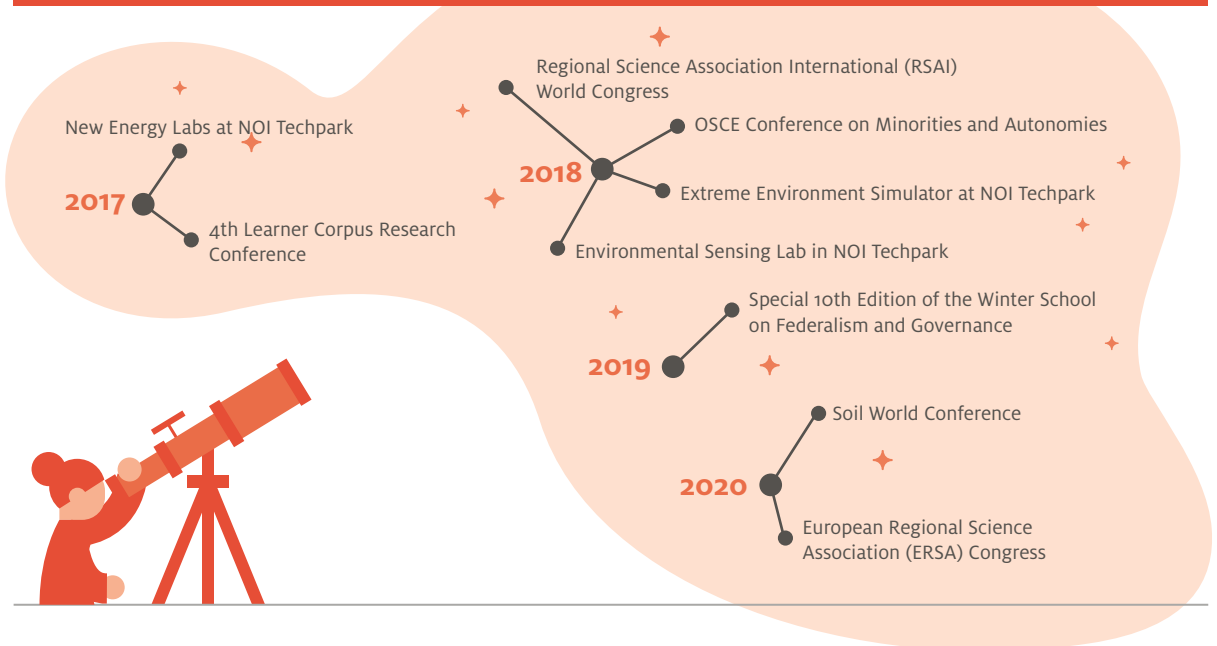
3rd Virtual Alpine Observatory (VAO) Symposium

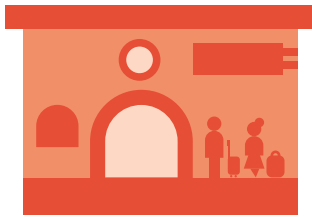
2nd International Conference on Smart and Sustainable Planning for Cities and Regions

OUR MARATHON RUNNERS



EVENTS THAT ARE COMING UP FOR US





Roland Psenner
President
*Scientific Excellence,
International Cooperation*



Stephan Ortner
Director
*Technology Park,
Capacity Building*



Roberta Bottarin
Vice-Director
*Challenge,
Research as Chance*



Joseph Marko
Head of the Institute for Minority Rights
*Minority Rights, Diversity Governance,
Autonomy, Migration, Non-discrimination*

Francesco Palermo
Head of the Institute for Comparative Federalism
*Autonomy, Comparative Federalism,
Multilevel Governance, Institutional Innovation,
Participatory Democracy*



Andrea Abel and Marcello Soffritti
Heads of the Institute for Applied Linguistics
*Translation Quality, Multilingual Knowledge, Learner
Corpora, Language Competences, Digital Infrastructures*



Kurt Promberger and Josef Bernhart
Head and Vice Head of the Institute for Public Management
*Government4.o, Social Innovation, Spending Review, Smarter
Lives, Municipal Amalgamation*





Peter Pramstaller and **Andrew Hicks**

Head and Vice Head of the Institute for Biomedicine
Precision Healthcare, Big Data Mining, Ethical Policymaking, Translational Research, Systems Biomedicine



Wolfram Sparber and **Alexandra Troi**

Head and Vice Head of the Institute for Renewable Energy
Renewables, Smart City, Energy Efficiency, Energy Transformation, Sustainable Energy Systems



Albert Zink

Head of the Institute for Mummy Studies
Mummy Studies, Microbiomics, Pathogenomics Physical Anthropology, Conservation Technologies



Hermann Brugger and **Giacomo Strapazon**

Head and Vice Head of the Institute of Mountain Emergency Medicine
Avalanche Survival, Mountain Rescue, Extreme Environment, Altitude Physiology, Medical Education



Ulrike Tappeiner

Head of the Institute for Alpine Environment
Biodiversity, Ecosystem Services, Ecological Modeling, Biogeochemical Cycles



Harald Pechlaner and **Thomas Streifeneder**

Heads of the Institute for Regional Development
Destination Management, Social- and Agricultural Economics, Tourismus, Mobility and Transport, Environmental Management



Marc Zebisch and **Claudia Notarnicola**

Head and Vice Head of the Institute for Earth Observation
Environmental Monitoring, Earth Observation, Mountains Risk Management, Climate Risks

OUR ALUMNI

25

THEY'RE A PART OF OUR HISTORY AND ALSO A PART OF OUR FUTURE. HERE ARE SOME FORMER COLLEAGUES WHO HAVE DEPARTED FROM THEIR EXPERIENCE AT EURAC RESEARCH TO EXPLORE WIDER HORIZONS.

Maurizio Armani, Engineer, Director at SolarLiving

Gresa Caka-Nlmani, Judge of the Constitutional Court of the Republic of Kosovo

Stefania Cavagnoli, Professor of Applied Linguistics at the University of Rome Tor Vergata

Franziska Cecon, Professor for Public Management and Vice-Dean at The University of Applied Sciences Upper Austria

Emanuele Emili, Researcher at Centre Européen de Recherche et de Formation Avancé Toulouse

Maurizio Facheris, Medical Director Neuroscience Development, Abbvie, Chicago

Christina Fraenkel-Haeberle, Professor at the German University of Administrative Sciences, Speyer

David Grant, Peace Commissioner at the Department of Justice of Ireland

Katharina Grasegger, Practitioner at the Ludwig-Maximilians University of Munich

Marcus Herntrei, Professor of Tourism Management at the International University of Applied Sciences, Bad Honnef

Dominik Holzer, Chief of Cabinet of the President of the Autonomous Province of Bolzano

Pranaw Koirala, Sherpa with training in emergency aid in Nepal

Georg Lun, Director of the Economic Research Division of the Autonomous Province of Bolzano

Felix Meyer, President and Director of The University of Applied Languages SDI München

Daniel Migliaccio, Emergency Medicine Researcher at Stanford University

Cosetta Minelli, Reader in Medical Statistics at Imperial College, London

Alexander Onysko, Professor of English Linguistics at Alpen-Adria University Klagenfurt

Bertram Ostendorf, Professor of Ecology and Environmental Science at the University of Adelaide, Australia

Alessio Passera, Engineer at Stahlbau Pichler

Marcello Petitta, Physicist at ENEA and Entrepreneur in the field of climate services

Giovanni Poggeschi, Professor of Comparative Public Law at the University of Lecce

Aude Saint Pierre, Professor at Université de Bretagne Occidentale in Brest, France

Oliver Streiter, Professor at the National University of Kaohsiung, Taiwan

Anke Tetzlaff, Geophysicist at Meteo Swiss

Gabriel N. Toggenburg, Senior Legal Advisor European Union Agency for Fundamental Rights, Vienna

Alice Vittoriosi, Engineer at the Global Engineering Group GKN

Thomas Wolf, Economist, Vice-President Global Sales Operations at Trintech, Texas

Anita Zehrer, Professor at the MCI Management Center, Innsbruck



Research



— Good Regions to Live In

We develop sustainable energy plans and mobility systems to reduce pollution. We study how to prevent natural catastrophes and carefully handle the resources of the alpine environment. We encourage respectful tourism and support the local economy. The solutions we develop are tailor-made for South Tyrol, but can have equally positive impacts on regions around the world.

— The Richness of Diversity

With an emphasis on the uniqueness of every individual, we work to support social cohesion and integration of minorities, as well as encourage multilingualism and citizen participation in political life. We also seek to enhance biodiversity. For us, diversity is a value to be studied, defended and promoted.

— A Healthy Society

We focus on disease prevention, verify procedures to help victims of mountain accidents, and study ancient diseases to better understand contemporary pathologies. We believe that a healthy society is a stable society, one that can progress and improve life for its citizens.





Immigration and Collective Identity in Minority Nations

How do the political parties in minority nations reframe their collective identity to include or exclude newcomers? A new Eurac Research study published in 2016 examines political discourse and governance around immigration in five minority nations to see how they are dealing with diversity created by migration. The insights of the study will form the basis of further studies of immigrant integration at the regional and local level.

The percentage of foreign-born residents in the sub-state (minority) nations of Scotland, the Basque Country, South Tyrol, Corsica, and Wales has increased substantially over the last twenty years. As a result, immigration, and in particular, integration, has become one of the most debated topics and policy areas in these territories.

The political parties located in minority nations are known as Stateless Nationalist and Regionalist Parties (SNRPs). SNRPs might try to protect their distinctiveness within the larger state by forestalling diversity. Or they might boost their sub-state's population by enrolling newcomers into their community, strengthening the negotiating powers vis-à-vis the state by numerically boosting its demographics.

In order to understand where the SNRPs of these five countries fit between these two potential reactions, researcher Verena Wisthaler examined their political discourse and governance policy around immigration between 1992 and 2012. This 20-year longitudinal study gave Wisthaler important insights into whether relations between the sub-state and state impact the redefinition of collective identity in minority nations when confronted with immigration.

One important finding is the tendency among some minority nations to create hierarchies and double standards: they choose to protect and promote their own minority culture vis-à-vis the state, while pursuing an assimilationist stance towards newcomers. This might, the study suggests, create further cleavages between newcomers and sub-state societies. To reconcile different types of diversities, can we find new ways of recognizing that identities are fluid and dynamic? When and under which conditions do minority nations allow and promote multiple, hyphenated, or multileveled (collective) identities?

DE Immigration und kollektive Identität in Minderheitenregionen

Verbinden politische Parteien in Minderheitenregionen die Definition der kollektiven Identität mit dem Integrationsdiskurs, je nachdem, ob Neuankömmlinge integriert, assimiliert oder ausgegrenzt werden sollen? Eine 2016 publizierte Studie von Eurac Research untersucht den politischen Diskurs und die Politiken in fünf europäischen Minderheitenregionen im Hinblick auf den Umgang mit migrationsbedingter Vielfalt. Die Erkenntnisse sind Ausgangspunkt für weitere Studien zur Integration von Immigranten auf regionaler und lokaler Ebene.

IT Immigrazione e identità collettiva nelle minoranze nazionali

In che modo i partiti politici delle minoranze nazionali riformulano la loro identità collettiva per includere o escludere i nuovi arrivati? Uno studio di Eurac Research pubblicato nel 2016 esamina i discorsi politici e la gestione dell'immigrazione in cinque nazioni minoritarie per capire come è stata affrontata la diversità. A partire dai risultati della ricerca verranno svolti ulteriori studi sull'integrazione dei migranti a livello regionale e locale.

Minoranze: proposta per una normativa regionale più organica



I giuristi di Eurac Research, in collaborazione con i colleghi dell'Università di Trento e dell'Ufficio per le minoranze linguistiche della regione Trentino Alto Adige/Südtirol, hanno formulato una proposta per sistematizzare la normativa regionale in materia di promozione e valorizzazione dei gruppi linguistici e della diversità linguistica e culturale.

Il Trentino Alto Adige viene spesso indicato come esempio virtuoso per quanto riguarda la normativa a tutela delle minoranze linguistiche. Uno dei rari nei è il complesso intreccio di disposizioni a livello regionale e provinciale. Questo intreccio rischia di provocare sovrapposizioni di ruoli e anche qualche preoccupazione agli amministratori che le leggi devono applicare. Uno studio coordinato dai giuristi di Eurac Research ha analizzato la legislazione regionale e si è concluso con una proposta di sistematizzazione. Ad ora, il testo di riferimento per le minoranze a livello regionale, oltre allo statuto di autonomia, è la legge sull'integrazione europea numero 10 del 1988, ma i giuristi hanno individuato disposizioni minori disperse in altre leggi. "La proposta che abbiamo elaborato, qualora accettata, abrogerebbe e riassorbirebbe tutte le norme in un testo unico. Un testo unico che darebbe più rilievo alla materia e sarebbe anche più pratico da applicare", spiega Alexandra Tomaselli, referente per il gruppo di lavoro.

La proposta si basa sul principio di sussidiarietà verticale al fine di ottimizzare il coordinamento tra le azioni della regione e delle province autonome di Trento e Bolzano. "In linea di principio, ciò dovrebbe comportare una maggiore efficienza, specie in settori articolati come la promozione dell'utilizzo delle lingue regionali minoritarie nell'editoria e nei mezzi di comunicazione", continua Tomaselli.

Gli esperti suggeriscono anche delle integrazioni di tipo ispirate dalle legislazioni di altre regioni. Per esempio, come nella normativa del Friuli Venezia Giulia, lo studio propone di stimolare iniziative per il dialogo tra minoranze e maggioranze. I ricercatori hanno affidato la proposta all'assessorato che si occupa di minoranze linguistiche.

EN Minorities: a proposal for a more comprehensive regional legislation

Lawyers from Eurac Research, in collaboration with colleagues at the University of Trento and the Office for Linguistic Minorities in Trentino Alto Adige/Südtirol region, have made a proposal to organise regional legislation on the promotion and enhancement of linguistic groups and linguistic and cultural diversity. The researchers paid attention to links with provincial regulation and have taken inspiration from pre-existing examples in Italy.

DE Minderheiten: Entwurf einer umfassenderen regionalen Rechtsordnung

Wie könnten die regionalen Bestimmungen zum Schutz der Sprachminderheiten und zur Förderung kultureller Vielfalt systematisiert werden? Gemeinsam mit dem Amt für Sprachminderheiten der Region Trentino - Südtirol und Kollegen der Universität Trient arbeiteten die Juristen von Eurac Research einen Vorschlag aus, der die Übereinstimmung von Provinzgesetzen berücksichtigt und Anregungen aus anderen italienischen Regionen aufnimmt.

Studie für die OSZE: Minderheiten als Brückenbauer in Europas Grenzregionen

In Grenzregionen sind es oft Minderheiten, die den kulturellen und wirtschaftlichen Austausch mit den Nachbarn vorantreiben. Damit tragen sie dazu bei, dass solche peripheren – da von der Hauptstadt meist weit entfernten – Gebiete zu besonderen Kontaktgebieten werden. Zu diesem Schluss kommt eine Studie, die die Organisation für Sicherheit und Zusammenarbeit in Europa (OSZE) in Auftrag gegeben hat. Föderalismus- und Minderheitenexperten von Eurac Research haben darin untersucht, welche rechtlichen und politischen Instrumente den Minderheiten für grenzüberschreitende Zusammenarbeit zur Verfügung stehen.

Ein Staat ist üblicherweise Herr über sein Gebiet bis zu seiner Grenze. Diese beendet gleichzeitig den Wirkungsbereich eines staatlichen Rechts- und Verwaltungssystems. Doch arbeiten Menschen in vielen Regionen auch über die Grenzen hinweg mit ihren Nachbarn eng zusammen. Mit dem Europäischen Verbund für territoriale Zusammenarbeit, kurz EVTZ, hat die EU beispielsweise ein Instrument geschaffen, das die grenzüberschreitende Zusammenarbeit nicht nur erleichtert, sondern sogar institutionalisiert. „Ein EVTZ ist eine eigene Körperschaft mit dem Ziel die Zusammenarbeit in ihrem staatenübergreifenden Territorium eigenständig zu fördern“, erklärt die Föderalismusforscherin Carolin Zwilling von Eurac Research. „Damit ist der EVTZ ein für Juristen äußerst innovatives, ja fast schon revolutionäres Instrument. Denn hier wird erstmals die Staatsgrenze – und damit auch das auf dem Staatsgebiet geltende Regelsystem – hintangestellt zugunsten der Zusammenarbeit“, so Zwilling.

Wenn auch weit verbreitet, ist der EVTZ jedoch nur eine der vielen Möglichkeiten, um über die Grenzen hinweg effizient zusammenzuarbeiten. Die Föderalismus- und Minderheitenexperten von Eurac Research untersuchten 35 Grenzregionen in den mittel- und osteuropäischen Mitgliedstaaten der OSZE, in denen Minderheiten leben. Im Detail analysierten die Wissenschaftler, welche rechtlichen und politischen Instrumente den Minderheiten für grenzüberschreitende Kontakte zur Verfügung stehen und wie sie diese jeweils nutzen. So zeigte es sich, dass zum Beispiel entlang der ungarischen Grenze sehr viele EVTZs gegründet wurden. Ihr Ziel ist es, die ungarischen Minderheiten in den Nachbarländern zu schützen, so etwa der Verbund „Gate to Europe“ an der Grenze zwischen Ungarn und Rumänien: Mit landwirtschaftlichen Zusammenschlüssen verhindert er die Zerstückelung landwirtschaftlicher Flächen und bietet jungen Unternehmern eine gemeinsame Plattform des Austauschs.

Neben Instrumenten wie dem EVTZ entstehen grenzüberschreitende Kontakte oft auch über spontane Aktivitäten

zwischen Vereinen oder „bottom-up“ Bewegungen. Viele Beispiele hierfür fanden die Forscher etwa an der deutsch-tschechischen Grenze: Der Deutsch-Tschechische Zukunftsfonds fördert über das Deutsch-Tschechische Dialog Forum und das Deutsch-Tschechische Jugendforum den Austausch zwischen den Jugendlichen über die Grenze hinweg. Auch eine nach Themen geordnete Suche führt zu zahlreichen Beispielen für grenzüberschreitende Beziehungen. Der gemeinsame Umweltschutz ist Leitgedanke für Nationalparks, deren Interesse dem Schutz von Tier und Natur gilt, die an der Grenze nicht Halt machen. So zum Beispiel der Prespa Park, der sich auf albanischem, mazedonischem und griechischem Boden erstreckt. Die Minderheitengruppen in diesem Gebiet sind sowohl in kultureller als auch in wirtschaftlicher Hinsicht am Nationalpark beteiligt und fördern damit gleichzeitig die Entwicklung des gesamten Grenzgebiets.

Der Abschlussbericht, der die Studienergebnisse der Forscher von Eurac Research zusammenfasst, ist Teil eines großen Forschungsprojekts, mit dem die OSZE 2016 das Europäische Zentrum für Minderheitenfragen (ECMI) und Eurac Research beauftragt hat. Ziel war es, den OSZE-Mitgliedsstaaten die verschiedenen Möglichkeiten der grenzüberschreitenden Zusammenarbeit insgesamt und die brückenbildende Rolle der Minderheiten im Besonderen aufzuzeigen. Während das ECMI eine qualitative Befragung von Minderheitengruppen durchgeführt hat, lag das Augenmerk der Forscher von Eurac Research auf der Erhebung und Analyse des rechtlichen und politischen Rahmenwerks, das die grenzüberschreitende Zusammenarbeit bestimmt.

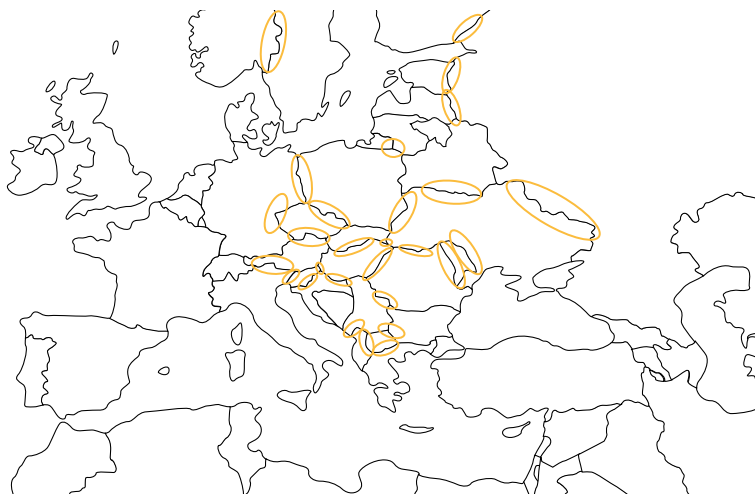
Der Abschlussbericht von Eurac Research steht kostenfrei unter www.eurac.edu auf der Seite des Instituts für Vergleichende Föderalismusforschung zur Verfügung.

EN Minorities Create Bridges in European Border Regions: A Study for the OSCE

In border regions, minorities often accelerate cultural and economic exchanges with neighbouring populations, and in turn, favour increased contact between these regions. This is the conclusion of a study conducted by experts of federalism and minorities at Eurac Research, commissioned by the Organization for Security and Cooperation in Europe (OSCE). The researchers analysed the legal and political tools available to minorities with respect to cross-border cooperation.

IT Studio per l'OSCE: le minoranze linguistiche aiutano a creare ponti nelle regioni europee di confine

Nelle regioni di confine spesso le minoranze concorrono allo scambio culturale ed economico con le popolazioni vicine, contribuendo a mantenere in contatto le aree periferiche. È questa la conclusione di uno studio realizzato dagli esperti di federalismo e minoranze di Eurac Research su incarico dell'Organizzazione per la sicurezza e la cooperazione in Europa (OSCE). I ricercatori hanno analizzato gli strumenti giuridici e politici a disposizione delle minoranze in materia di cooperazione transfrontaliera.



Die Forscher von Eurac Research untersuchten im Auftrag der OSZE mehr als 30 Grenzregionen.

Capacity Building in Asia and Africa

Myanmar and Ethiopia are the current focuses of the umbrella project 'Capacity Building in Asia and Africa', a series of knowledge-transfer activities made possible by Eurac Research's well-established examinations of federal systems around the world.

Eurac Research began its studies on federalism with an investigation of South Tyrol's autonomy system. This research was soon broadened to include comparative analyses of federal systems throughout Europe and on other continents. With time, international organisations, governments and foundations began to hire the experts of Eurac Research to assist with capacity-building projects, first in Europe, and then increasingly in the federal or federalising countries in Africa and Asia.

Capacity-building Activities 2016

Interested area	Action
Myanmar	June 2016 - One-week workshop on federalism to civil servants and policy-makers. Held in the Zeepingyi Central Institute of Civil Service, Myanmar by Elisabeth Alber.
Ethiopia	December 2016 - Symposium "Federalism as a peace-making instrument in the Horn of Africa: Comparative and Country Perspectives." Organised by Eurac Research and the University of Addis Ababa, with a talk by Karl Kössler. December 2016 - Colloquium to assist doctoral students with the development and completion of their doctoral theses. Held by Karl Kössler.

One example of the lasting impact of these capacity-building exchanges is the collaboration with Professor Yonatan Fessha, from the University of the Western Cape, South Africa. Fessha's first experience with Eurac Research was in 2010, as a participant in the very first Winter School on Federalism and Governance. After attending Eurac Research's Marie Curie Week in 2016, he was selected by the European Commission for the Marie Curie Individual Fellowship Programme. The EU will fund a two-year stay of Fessha at Eurac Research, where he will implement a project about intergovernmental relations in divided societies, comparing European and African experiences.

DE Capacity Building in Asien und Afrika

Experten in der Analyse föderaler Systeme weltweit, sind die Föderalismusforscher in Austauschprogrammen mit Asien und Afrika engagiert, um Wissen weiterzugeben und beim Aufbau von Kapazitäten zu helfen. Zurzeit stehen Myanmar und Äthiopien im Fokus der Zusammenarbeit.

IT Creare competenze in Asia e Africa

A partire dall'autonomia altoatesina, gli studi di Eurac Research sul federalismo si sono ampliati, andando anche oltre i confini europei. Oggi i ricercatori mettono le proprie competenze a disposizione di organizzazioni internazionali, governi e fondazioni e sono impegnati in progetti di capacity building in Africa e Asia. Myanmar ed Etiopia sono i paesi con cui al momento sono attivi degli scambi.



Misurare l'autonomia finanziaria

Tra il dire e il fare c'è di mezzo il mare. Sì, ma quanto? In merito all'autonomia finanziaria degli enti regionali, la risposta arriva da una giurista di Eurac Research. Alice Valdesalici ha sviluppato uno strumento a base di indicatori e algoritmi matematici che misura lo scarto tra quello che stabiliscono le leggi e quello che succede nella realtà. Verificato sui casi della Germania e della Spagna, lo strumento può essere impiegato per altri studi e consulenze.

I Länder tedeschi e le comunità autonome spagnole godono di un'autonomia finanziaria garantita dalle rispettive costituzioni. Per esempio, co-decidono con lo stato centrale alcune imposte importanti come l'Irpef.

Nei due stati le disposizioni che regolano i poteri in materia finanziaria sono però diverse; per confrontarle e verificare quali abbiano la resa migliore, la giurista Alice Valdesalici ha messo a punto una scala di indicatori. "Ho attribuito a ogni strumento che le regioni usano per finanziarsi un valore da zero a quattro", spiega la studiosa. "Zero per i tributi decisi in modo unilaterale dal governo centrale. Quattro per le entrate frutto di decisioni prese in via esclusiva dalla regione".

Sulla carta, secondo le sue misurazioni, il sistema spagnolo garantisce la maggiore autonomia finanziaria regionale nel reperimento delle risorse. Ma lo studio si è spinto oltre.

Con un algoritmo matematico ha valutato il rapporto tra l'autonomia teorica e quella effettiva e la classifica è stata ribaltata: i Länder sono più responsabilizzati nelle decisioni che riguardano i loro bilanci. "Ogni normativa deve infatti fare i conti con il sistema giuridico complessivo e con il contesto in cui viene applicata. In questo caso, incide per esempio il sistema di incentivi giuridici ed economici che favoriscono il rispetto delle regole", precisa Valdesalici.

Nel 2016, lo studio ha vinto il premio della Conferenza dei presidenti dei consigli dei Länder austriaci e dell'Istituto per il federalismo di Innsbruck, e il "Ronald L. Watts Young Scholar Award" dell'Associazione internazionale dei centri per gli studi federali.

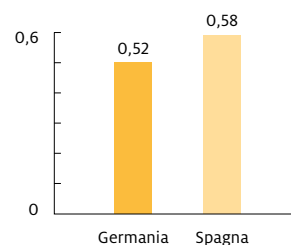
EN Measuring Financial Autonomy

Measuring the financial autonomy regional authorities is easier said than done. This is why lawyer Alice Valdesalici from Eurac Research has developed a tool based on indicators and mathematical algorithms to measure the difference between what is determined by the law and what happens in reality. Proven effective in case studies in Germany and Spain, the instrument can be applied to other studies and consultancy.

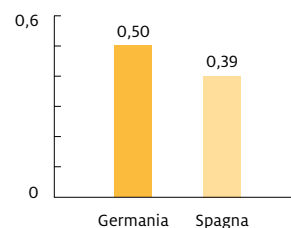
DE Finanzautonomie messen

Gesagt ist noch lange nicht getan: Das gilt auch beim Thema Finanzautonomie. Aber wie weit liegen gesetzliche Bestimmungen und Wirklichkeit tatsächlich auseinander? Um dies zu messen, hat die Juristin Alice Valdesalici ein Instrument aus Indikatoren und Algorithmen entwickelt. An den Fällen Deutschlands und Spaniens getestet, kann es für vielfältige Studien und Beratungsprojekte verwendet werden.

Autonomia stabilita per legge



Autonomia de facto



Active and Assisted Living Solutions for the Elderly

Many ageing people worry about losing their ability to live autonomously and manage all the individual activities of daily life. The gAALaxy project, a consortium of nine European partners that includes Eurac Research, is developing a residential gateway for retrofit solutions for the home that involve a range of Active and Assisted Living (AAL) technologies that can help the elderly maintain their independence.

The AAL (Active and Assisted Living) movement leverages technological advances to give the elderly greater autonomy in the environment of their own homes. A part of the AAL movement, the gAALaxy project, run by a consortium of nine private and research partners from Belgium, Italy and Austria, is developing and distributing affordable and easy-to-use, internet-based solutions that incorporate AAL into the home. gAALaxy's retrofit technology bundle can offer holistic home-based support to the elderly. The prototype contains home monitoring (detection of fire, flooding, light or switched on devices), a 3D automatic fall detection system, an emergency watch with innovative features, an online platform for matching the needs of the elderly with volunteers, and different smart home solutions for comfort and home security. The goal is to increase the comfort, security, and independence of the elderly person at home, as well as the psychological relief of their caregivers.

The project is funded by the European AAL programme; the Austrian Research Promotion Agency; the Ministry of Education, Universities and Research (Italy); and the Flanders Innovation & Entrepreneurship.

To gain insight on how gAALaxy needs to be designed, once the first gAALaxy solution bundle has been developed, the development teams will tailor individual aspects of the gAALaxy bundle through regional testing in the homes of older adults. Eurac Research is participating in the development of a prototype version in South Tyrol, which will be tested until the autumn of 2018.

DE Neue Technologien für ein unabhängiges Leben im Alter

Wie können ältere Menschen möglichst lange ihren Lebensstandard und ihre Unabhängigkeit in den eigenen vier Wänden bewahren? Das ist die zentrale Frage einer Fachrichtung angewandter Forschung, für die sich der Name AAL (Active and Assisted Living) etabliert hat. Im Rahmen eines europäischen Projekts mit neun Partnern entwickelt Eurac Research eine Schnittstelle für hilfreiche Technologien für Wohnungen älterer Personen und testet sie bis zum Herbst 2018 in Südtirol.

IT Soluzioni abitative per gli anziani

Il progetto gAALaxy, svolto da un consorzio di nove partner europei tra cui Eurac Research, sta sviluppando soluzioni per dotare le abitazioni di tecnologie Active and Assisted Living (AAL) in modo da aiutare gli anziani a mantenere la loro indipendenza. Eurac Research partecipa allo sviluppo di un prototipo che verrà testato in Alto Adige.

Frauen in Führungspositionen



Mit welchen Schwierigkeiten haben Frauen zu kämpfen, die Beruf, Familie und politisches Engagement verbinden wollen? Wie kann man Frauen den Weg in die Politik erleichtern? Mit diesen Fragen befassen sich Forscher von Eurac Research schon seit 2012, als sie in einer Studie gemeinsam mit Schweizer Kollegen den Gründen nachgingen, warum sich so wenige Frauen gemeindepolitisch engagieren. Darauf aufbauend entwickelten sie eine erfolgreiche Seminarreihe für „Frauen in der Gemeindepolitik“ und riefen eine Veranstaltungsreihe ins Leben, um Frauennetzwerke zu stärken.

Nur ein Viertel der Südtiroler Gemeinderäte sind Frauen, nur elf von 116 Gemeinden haben eine Bürgermeisterin: Auch auf kommunaler Ebene ist Politik in Südtirol nach wie vor eine männliche Domäne. Von einer ausgewogenen Teilhabe an Entscheidungsprozessen ist man weit entfernt. Nicht nur Frauen empfinden dies als Manko. Von Eurac Research befragt, erklärten auch die männlichen Gemeindepolitiker eine stärkere politische Beteiligung von Frauen für erstrebenswert, weil Frauen wichtige Themen und Fragen in die Debatte einbrächten.

Um Frauen das gemeindepolitische Engagement zu erleichtern und sie „in ihren Aufgaben zu stärken“, wie der Verwaltungsexperte Josef Bernhart erklärt, erarbeiteten die Forscher von Eurac Research eine Reihe von Seminaren, in denen moderne Managementprinzipien und umfassendes Wissen zu aktuellen Gemeindefragen vermittelt wurden. Die Seminare wurden gemeinsam mit dem KVW in Brixen, Schlanders, Meran und Bruneck angeboten und stießen auf großes Interesse. Dabei trat auch wieder eine oft beklagte Schwachstelle zutage: Frauen in Südtirol fehlen die informellen Netzwerke, auf die Männer sich im politischen wie beruflichen Engagement stützen. Um solche Frauennetzwerke zu stärken und den Austausch zu fördern, rief Eurac Research eine Diskussionsreihe „Frauen in Führungspositionen“ ins Leben, bei der 2016 zum Beispiel die österreichische Höchstrichterin und Kandidatin für das Amt des Bundespräsidenten Irmgard Griss zu Gast war. Die Reihe wird 2017 fortgesetzt, nächste Termine sind für Juni und September geplant.

EN Women and Leadership

In South Tyrol, only a quarter of municipal councillors are women and only 11 out of 116 municipalities have a female mayor. For some time, researchers at Eurac Research have been asking themselves how to facilitate the participation of women in political life. Departing from a study that examined the main causes of a lack of women's participation in municipal politics, researchers have organised workshops for women who want to engage in this field, and have promoted a series of events to strengthen their networks.

IT Donne e leadership

In Alto Adige solo un quarto dei consiglieri comunali è donna. Appena 11 comuni su 116 hanno una sindaca. Da tempo i ricercatori di Eurac Research si chiedono come facilitare alle donne la partecipazione alla vita politica. Sulla base di uno studio sui motivi della scarsa presenza femminile nella politica comunale, i ricercatori hanno organizzato un ciclo di seminari per le donne che vogliono impegnarsi in questo ambito e hanno promosso una rassegna di manifestazioni per rafforzare le reti.

Quanto costa la politica comunale?

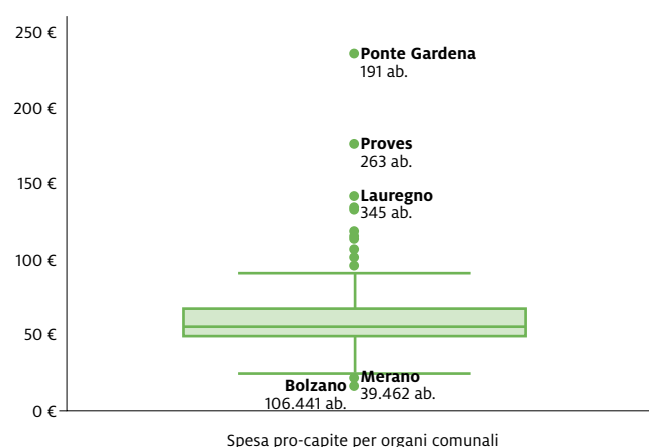
In un momento storico in cui i populismi si nutrono di luoghi comuni, gli studiosi di management pubblico di Eurac Research propongono una fotografia statistica dei costi della politica comunale in Tirolo e Alto Adige. La spesa è troppo alta? Gli stipendi dei sindaci e delle giunte comunali andrebbero tagliati? L'analisi non esprime giudizi di merito, ma offre una panoramica di dati da cui partire per operare scelte politiche.

I ricercatori hanno analizzato la geografia dei comuni del Tirolo e dell'Alto Adige, organizzandoli per ampiezza della popolazione. Hanno quindi indagato la composizione delle spese per la politica comunale e hanno calcolato il peso che ricade sulle spalle di ogni singolo cittadino e la spesa media per ogni amministratore. I risultati sono presentati in oltre 60 grafici e tabelle commentate nel dettaglio. Il volume *Quanto costa la politica comunale? Wie viel kostet die Gemeindepolitik?* si può scaricare dal sito di Eurac Research e è stato distribuito a tutte le amministrazioni locali.

Ecco qualche esempio tratto dalla pubblicazione.

A parità di competenze, i costi della politica coprono in media la stessa percentuale della spesa corrente: circa il 3 per cento. La voce più rilevante corrisponde alle indennità: quasi l'80 per cento in Alto Adige, quasi il 70 in Tirolo.

La media ponderata del costo pro-capite per il funzionamento degli organi comunali in Alto Adige è di circa 40 euro. Questa cifra tende a crescere nei comuni più piccoli, superando anche i 200 euro.



Per contro, la spesa media per singolo amministratore è più alta nei centri più grandi. In generale, in provincia di Bolzano gli amministratori costano in media circa 2000 euro l'anno in più che in Tirolo. Questo dipende anche dal fatto che in Alto Adige il rapporto abitanti/rappresentanti politici è più basso che in Tirolo (1:248 contro 1:191).

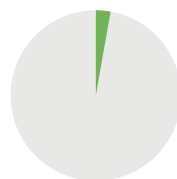
EN The Cost of Municipal Politics

In a time when populisms feeds on clichés, the scholars of Public Management Research at Eurac Research are proposing a statistical snapshot of the costs of local politics in Tyrol and Alto Adige. Is expenditure too high? Should the salaries of mayors and city councils be cut? Avoiding any value judgements, the analysis provides an overview of the data from which decisions can be made.

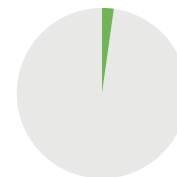
DE Wie viel kostet die Gemeindepolitik?

In einem historischen Moment, in dem populistische Strömungen jeder Couleur sich von Gemeinplätzen nähren, sind die Public Management-Experten von Eurac Research der Frage auf den Grund gegangen, wie viel die Gemeindepolitik in Tirol und Südtirol tatsächlich kostet. Sind die Ausgaben zu hoch? Die Forscher fällen kein Urteil, liefern mit dem klaren statistischen Überblick aber eine Basis für politische Entscheidungen.

Alto Adige 3,04%



Tirolo 2,39%



Costi politica su totale spesa corrente

E-Learning for Health and Safety in the Workplace



28 e-learning modules were revised and translated by Eurac Research linguists as part of a bilateral agreement with the Prevention and Protection Service (Human Resources Department) of the Autonomous Province of Bolzano. The modules offer civil servants, teachers, and vocational students high quality e-learning on various issues of health and safety in the workplace.

Italian legislation decrees that all Italian workers must be informed on the general risks to health and safety at work. To facilitate this learning, the Autonomous Province of Bolzano collected and integrated existing educational material on the topic from various sources in order to make it available online in Copernicus, their e-learning platform. The assembled material proved to be in great need of terminological standardisation and cross-translation between Italian and German. For this reason, the Province approached the linguists at Eurac Research to perform a revision of 28 e-learning modules. In the three-year project, which ended in October 2016, the team of four translators and one legal expert reviewed all the texts—about 1,500,000 characters. The team ensured a coherent style and terminology across the texts, and then translated them into either Italian or German. In exchange for this work, Eurac Research received a tailored training plan for its staff, a small fee, and, most importantly, access to the e-learning platform Copernicus. Eurac Research was thus able to use the e-learning platform to teach its own staff about health and safety in a program compliant with Italian legislation. All modules have now been revised and translated, and are currently online for use by civil servants, teachers, and vocational students (as well as being freely available to all South Tyrolean institutions and companies). The modules offer training on various health and safety issues in the workplace, including dangerous noises, chemical risks in labs, working with heavy machinery, construction site safety, and how to correctly position video displays. The very first training module the team translated, which discusses the basics of health and safety at work, has already had 20,000 views.

DE E-Learning für Gesundheit und Sicherheit am Arbeitsplatz

Im Rahmen einer Vereinbarung mit der Abteilung Personal der Provinz Bozen übersetzten und überarbeiteten die Linguisten von Eurac Research 28 E-Learning Module zum Thema Arbeitsschutz. Mit den qualitativ hochwertigen Modulen in Deutsch und Italienisch haben Beamte, Lehrer und alle Interessierten die Möglichkeit, sich essentielles Wissen zur Gesundheit und Sicherheit am Arbeitsplatz anzueignen – etwa zu schädlichem Lärm, chemischen Risiken in Laboratorien oder der Handhabung schwerer Maschinen.

IT E-learning su salute e sicurezza sul posto di lavoro

28 moduli di e-learning sono stati rivisti e tradotti dai linguisti di Eurac Research in seguito a un accordo con il Servizio prevenzione e protezione della Provincia Autonoma di Bolzano. I moduli offrono a funzionari pubblici, insegnanti e studenti delle scuole professionali formazione su diversi aspetti legati a salute e sicurezza sul posto di lavoro, tra cui: rumori pericolosi, rischi chimici in laboratorio, utilizzo di macchinari pesanti, sicurezza in cantiere, posizionamento degli schermi dei computer.

Digitale Infrastruktur für Sprachdaten und -services in Südtirol



Sprachforschungsinstitute, Bibliotheken, Archive, Verlage – alle diese Institutionen und Unternehmen erstellen und bearbeiten Sprachressourcen, etwa digitalisierte Textsammlungen. In vielen Punkten überschneidet sich ihre Arbeit. Damit diese Akteure in Südtirol künftig voneinander profitieren können und Abläufe effizienter werden, entwickeln die Computerlinguisten von Eurac Research eine institutionsübergreifende digitale Sprachinfrastruktur, die es erlaubt, Daten auszutauschen, sprachtechnologische Werkzeuge gemeinsam zu nutzen und wiederkehrende Arbeitsschritte zu systematisieren.

Wer Sprache erforscht, braucht eine Basis empirischer Daten, die aufzubauen – etwa durch Sammeln, Digitalisieren und Aufbereiten von Texten – beträchtlichen Aufwand erfordert. Aber nicht nur Linguisten befassen sich mit Sprachdaten. „Bibliotheken etwa sammeln und katalogisieren Textdokumente wie wir Sprachforscher auch“, erklärt die Computerlinguistin Verena Lyding. „So kann es passieren, dass eine Bibliothek eine bestimmte Zeitung für das Archiv digitalisiert – und wir zu Forschungszwecken exakt die gleiche Arbeit verrichten. Auch andere Akteure arbeiten oft parallel an ähnlichen Aufgaben ohne sich auszutauschen.“ Um Doppelarbeiten in Zukunft zu reduzieren, entwickelt Eurac Research gemeinsam mit Südtiroler Institutionen und Unternehmen eine digitale Infrastruktur für Sprachdaten und -services.

Dabei geht es zuerst darum, Synergien zu erkennen. Um sie dann praktisch nutzbar zu machen, müssen Prozesse und Werkzeuge in Einklang gebracht werden, das heißt „man definiert eine Reihe von best practices und stellt über Webschnittstellen die dazugehörigen Software-Werkzeuge zu Verfügung, zum Beispiel Tools für die automatische Erkennung von Eigennamen“, erläutert Lyding. „So kann sich jeder auf seine Kernkompetenzen konzentrieren und gleichzeitig von der Arbeit der anderen profitieren; der programmatische Austausch von Ressourcen wird möglich.“ Langfristig soll die digitale Infrastruktur die diversen Institutionen des Südtiroler Sprachökosystems einbinden, zum Mehrwert aller.

EN A Digital Infrastructure for Language Data and Services in South Tyrol

Research centres, libraries, archives and publishers manage and process language resources. Their work often overlaps. To ensure that these entities interact efficiently in South Tyrol, computational linguists at Eurac Research are developing a digital linguistic infrastructure that connects several institutions. The infrastructure standardises pre-tested work cycles, provides linguistic tools, and allows systematic data exchange.

IT Un'infrastruttura digitale per dati e servizi linguistici in Alto Adige

Centri di ricerca, biblioteche, archivi e case editrici gestiscono ed elaborano risorse linguistiche. Spesso il loro lavoro si sovrappone. Per fare in modo che in Alto Adige questi attori possano interagire più efficientemente, i linguisti computazionali di Eurac Research stanno sviluppando un'infrastruttura linguistica digitale trasversale a più istituzioni. La infrastruttura standardizza cicli di lavoro già collaudati, mette a disposizione strumenti linguistici e permette lo scambio sistematico dei dati.

Scuole: più lingue è meglio

L'Unione europea lo raccomanda da anni; in Alto Adige è slogan di grande attualità nelle intendenze scolastiche. Il plurilinguismo si profila sempre di più come obiettivo strategico nelle scuole di ogni grado. I linguisti di Eurac Research stanno testando, in collaborazione con la Provincia autonoma di Bolzano, degli strumenti per valutare il plurilinguismo e aiutare insegnanti e studenti a sfruttarne le potenzialità.

Amina ha vissuto due anni a Salonicco, dove ha imparato l'alfabeto greco: oggi le fa comodo per leggere più velocemente certi simboli matematici. Milan a casa parla bosniaco: in gita a Praga ha aiutato i compagni a leggere i cartelli riconoscendo parole slave simili. È questo il genere di storie che i ricercatori si aspettano di raccogliere nelle sette scuole dell'Alto Adige, medie e superiori, che partecipano allo studio RepertoirePlus. "Il plurilinguismo va oltre l'insegnamento in due o più lingue. Il repertorio linguistico che vanta ogni studente può attivare competenze trasversali", spiega Dana Engel, linguista responsabile della ricerca. "Il solo fatto di rendersi conto di sapere qualcosa in più o di diverso, anche se non riconosciuto in modo esplicito nel curriculum scolastico, motiva i ragazzi e migliora la dinamica di classe".

La sfida sta nel far emergere, descrivere e misurare quanto plurilinguismo ci sia nelle scuole. Gli strumenti per valutare le competenze linguistiche non sono sufficienti e il Quadro di riferimento per gli approcci plurali sviluppato dagli studiosi del Centro europeo per le lingue moderne (ECML) di Graz non è mai stato verificato empiricamente. I linguisti di Eurac Research propongono uno strumento operativo in due fasi. Al momento stanno distribuendo in 12 classi un questionario: ai ragazzi chiedono di raccontare, anche attraverso approcci creativi, quali e quante lingue e dialetti conoscono e quando e quanto li usino. A seguire, una rosa di classi campione verrà messa alla prova in attività laboratoriali filmate e commentate. Lo studio RepertoirePlus si concluderà nel 2019 e si affianca ad altri progetti che negli anni sono stati dedicati al plurilinguismo e alle competenze nella prima e nella seconda lingua, temi che da anni sono al centro degli studi di Eurac Research. Negli anni i ricercatori hanno elaborato materiali didattici a disposizione degli insegnanti, per esempio con lo studio Sprachenvielfalt macht Schule (SMS).

DE Der Wert der Mehrsprachigkeit

Die europäische Union propagiert sie seit Jahren, in den Südtiroler Schulämtern ist sie das Schlagwort der Stunde: Mehrsprachigkeit wird immer mehr und auf allen Schulstufen als strategisches Bildungsziel anerkannt. In Zusammenarbeit mit der Autonomen Provinz Bozen erarbeiten die Linguisten von Eurac Research Methoden, um Mehrsprachigkeitskompetenzen zu bewerten und Lehrern und Schülern zu helfen, die damit verbundenen Möglichkeiten auszuschöpfen.

EN Schools: more languages are better

The European Union has been recommending it for years and in South Tyrol it is a very important slogan for school commissions. Multilingualism is increasingly becoming a strategic goal in schools of all grades. Eurac Research linguists are testing, in cooperation with the Autonomous Province of Bolzano, an instrument to evaluate plurilingualism and to help teachers and students exploit its potential.



A Genetic Library for Heart Function

Eurac Research took part in a world-wide study in which electrocardiogram data from over 73,500 individuals were used in the search for new genes affecting heart function and disease. The study discovered 67 genes in 52 DNA regions that are important for the functioning of the heart muscle, contributing to an ever-growing library of the genetic sources of heart function.

Scientists from Eurac Research were part of a large consortium from 133 international research departments who examined data from the electrocardiograms (ECGs) of 73,518 patients from around the world. An ECG (the electrical signals) of a patient's heart enables cardiologists to identify abnormalities in the muscle mass and pulse conduction of the heart. Abnormalities in ECG readings are often a forewarning of heart failure and death.

The results of the genome-wide association study meta-analysis were published in the September 2016 edition of the renowned Journal of the American College of Cardiology (JACC). The consortium discovered 67 genes in 52 DNA regions that are important for the functioning of the cardiac muscle (32 of these regions are new to science). The scientists already knew that some of the genes cause serious cardiac diseases, but they did not realise that the majority of them also play a role in the way the heart functions. The results of the consortium's efforts represent a major contribution to the growing knowledge-base of the genetic basis of cardiac function and disease. Compiling the results of this research into such a genetic library enables researchers to explore new research related to heart function. Every one of the 52 regions is a potential starting point for developing new heart disease treatments .

The next step is to determine exactly what role each gene plays in the functioning of the heart. With this knowledge, researchers should be able to come up with new, better treatments to prevent or manage heart disease. It is all part of ongoing research at Eurac Research into the molecular and cellular mechanisms of cardiovascular disease.

“Now that these new genes have been discovered, one day we'll be able to link them to a risk of heart disease,” Andrew Hicks, Deputy Scientific Director of the Institute for Biomedicine. “The genetic makeup of an individual will become useful to predict if they are at a high risk of developing certain diseases. This will allow doctors to take preventative measures.”

DE Eine genetische Bibliothek der Herzfunktion

Eurac Research war an einer weltweiten Studie zum genetischen Hintergrund der Herzfunktion beteiligt, für die Elektrokardiogrammdaten von über 73.500 Menschen analysiert wurden. Dabei entdeckten die Forscher 67 Gene in 52 DNA-Regionen, die die Funktion des Herzmuskels beeinflussen: ein weiterer Beitrag zur stetig wachsenden genetischen Bibliothek der Herzfunktion. Die molekularen Mechanismen hinter Herz-Kreislauf-Erkrankungen aufzudecken, ist ein Schwerpunkt der biomedizinischen Forschung von Eurac Research.

IT Una biblioteca genetica per la funzione cardiaca

Eurac Research ha partecipato a uno studio a livello mondiale in cui gli elettrocardiogrammi di oltre 73.500 persone sono stati analizzati per scoprire nuovi geni collegati alla funzione cardiaca. Lo studio ha individuato 67 geni in 52 regioni di DNA, contribuendo ad accrescere la biblioteca delle cause genetiche della funzione cardiaca. Il progetto fa parte del filone di ricerche che Eurac Research dedica alle malattie cardiovascolari.

Parkinson-Forschung: Die Rolle der Zellkraftwerke beim Schutz vor Erkrankung

Parkinson, die zweithäufigste neurodegenerative Erkrankung nach Alzheimer, wird durch das Absterben von Dopamin-produzierenden Nervenzellen im Mittelhirn verursacht. Da Dopamin maßgeblich an der motorischen Steuerung beteiligt ist, zittern Parkinson-Kranke unkontrolliert und verlieren an Beweglichkeit. Bei etwa fünf bis zehn Prozent der Fälle sind Mutationen in bestimmten Genen für die Erkrankung verantwortlich. Besondere Bedeutung hat bei dieser erblichen Parkinson-Erkrankung das so genannte Parkin-Gen: Es schützt die Nervenzellen vor dem Absterben, wobei die Mitochondrien, die Zellkraftwerke, eine zentrale Rolle spielen. Forscher von Eurac Research sind dem genauen Mechanismus dieser neuroprotektiven Wirkung auf der Spur.

Vor allem beim frühen Auftreten der Erkrankung spielen Veränderungen im Parkin-Gen eine wichtige Rolle. Ist Parkin in seiner Funktion eingeschränkt, beeinträchtigt dies auch die Mitochondrien, die die Zelle mit Energie versorgen.

Da Dopamin-produzierende Nervenzellen viel Energie benötigen, könnte die Mitochondrien-Dysfunktion zu ihrem Absterben beitragen.

Die Forscher von Eurac Research haben einen Mechanismus aufgedeckt, über den Parkin zur Gesundheit der Mitochondrien beiträgt und so die Zellen schützt. Die Wissenschaftler entdeckten ein mitochondriales Protein, das mit Parkin interagiert, wenn die Zelle gestresst ist – etwa durch freie Radikale. Diese Interaktion scheint zentral, um die Funktion der Mitochondrien zu erhalten und das Absterben der Nervenzellen zu verhindern.

Unterstützt durch Drittmittel versuchen die Forscher nun, in Nervenzellen mit defektem Parkin diesen schützenden Prozess wieder in Gang zu bringen, indem sie kleine Parkin-Fragmente in die Zellen einbringen. Die gewonnenen Erkenntnisse könnten die Grundlage sein, um neue therapeutische Ansätze zu entwickeln.

EN Parkinson: The Role of Mitochondria in the Protection From Disease

Parkinson's disease, the second most common neurodegenerative disorder after Alzheimer's disease, is caused by the death of nerve cells in the midbrain. In ten percent of cases, mutations in key genes are responsible, with the Parkin gene playing an important role. This gene protects nerve cells from dying and affects mitochondrial function which, in turn, provides energy to cells. Researchers at Eurac Research are studying the mechanism of this neuroprotective effect.

IT Ricerca sul Parkinson: il ruolo dei mitocondri nella protezione dalle malattie

Il Parkinson, la seconda malattia neurodegenerativa più diffusa dopo l'Alzheimer, è causata dalla morte delle cellule nervose nel cervello medio nel mesencefalo. Nel dieci per cento dei casi, mutazioni in determinanti geni sono responsabili della malattia. Un ruolo importante è quello della cosiddetta Parkina: un gene che protegge le cellule nervose dalla morte e che influenza il funzionamento dei mitocondri che, a loro volta, forniscono energia alle cellule. I ricercatori di Eurac Research studiano il meccanismo di questo effetto neuroprotettivo.

Parkinson: nuovo studio sui disturbi del sonno

Oltre al tremore degli arti e ai problemi di movimento, i malati di Parkinson soffrono di altre serie disabilità. Per esempio, il loro ritmo sonno-veglia è alterato e hanno difficoltà di comprensione e concentrazione. Gli scienziati di Eurac Research hanno scoperto che questi disturbi potrebbero dipendere dalla proteina alfa-sinucleina.

Quando scende il buio e siamo svegli da tante ore, i neuroni del nostro cervello modulano il rilascio di neurotrasmettitori, tra cui la serotonina e l'istamina, che regolano il ciclo sonno-veglia. Nei malati di Parkinson il meccanismo non funziona a dovere. È come se i segnali dei neurotrasmettitori non partissero o fossero modulati negativamente. Nei laboratori di Eurac Research i biologi hanno scoperto che la trasmissione del segnale intracellulare di questi neurotrasmettitori è ostacolata dall'alfa-sinucleina, una proteina che nelle cellule nei malati di Parkinson è iperespressa, cioè è presente in misura superiore al normale. I ricercatori hanno confrontato in laboratorio cellule sane con cellule in cui i valori dell'alfa-sinucleina erano molto alti, con lo scopo di riprodurre la situazione molecolare delle cellule malate. "Abbiamo aggiunto a entrambe le colture cellulari la stessa dose di istamina e serotonina e abbiamo osservato la reazione in un lettore di luminescenza", spiega Corrado Corti, biologo molecolare responsabile dello studio che è stato pubblicato su Cell Signaling. "I risultati sono andati al di là delle nostre prime ipotesi. Nelle cellule dove l'alfa-sinucleina è iperespressa la trasmissione per i recettori istamina e serotonina non è disturbata solo in modo parziale ma è completamente abolita". Come esattamente l'alfa-sinucleina blocchi la trasmissione resta ancora da chiarire, ma aver verificato la correlazione è fondamentale. "I nostri dati potrebbero essere il punto di partenza per chi vorrà mettere a punto una cura che serva a normalizzare i disturbi debilitanti legati al sonno e alla cognizione nei malati di Parkinson", si augura Corti.

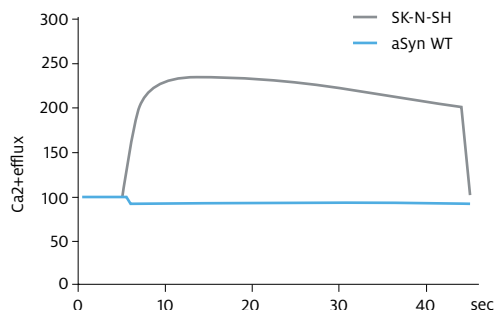
Quando si stimolano i recettori istamina e serotonina in cellule che iper-esprimono alfa-sinucleina, non c'è risposta (linea blu). La curva grigia mostra la risposta nelle cellule con livelli fisiologici di alfa-sinucleina.

EN Parkinsons: A New Study on Sleep Disturbance

In addition to symptoms affecting their motor coordination, patients with Parkinson disease are frequently affected by sleep disorders and cognition deficit, affecting their sleep-wake cycles, as well as their comprehension and concentration. Scientists at Eurac Research have recently discovered that the protein alpha-synuclein could be the molecular cause of these disturbances.

DE Parkinson: neue Studie zu Schlafstörungen

Neben Bewegungsstörungen und Zittern leiden Parkinsonkranke auch an anderen ernsthaften Beeinträchtigungen. So ist etwa ihr Schlaf-Wach-Rhythmus gestört und sie haben Konzentrations- und Verständnisschwierigkeiten. Die Ursache dafür könnte im Protein „Alpha-Synuclein“ liegen, wie Forscher von Eurac Research kürzlich herausfanden.



Fluorescence Lifetime Imaging to Test Parkinson's Drugs

New research opportunities are being created at Eurac Research thanks to a microscope detector setup that will offer researchers a new imaging modality called Fluorescence Lifetime Imaging. The system uses live cell imaging to dynamically test agents in diverse biological situations, including the effects of drugs on the alpha-synuclein protein, which is related to Parkinson's disease pathology.

The scientists of Eurac Research were involved in a project to design and fabricate a microelectronic technological demonstrator to be used for testing the efficacy of drugs against Parkinson's disease (PD). This disease is intricately linked to the aggregation state of alpha-synuclein (a-syn), a small, natively unstructured protein that can aggregate into insoluble structures that are toxic to neurons.

Key to the development of therapeutic treatments against PD is an understanding of the molecular mechanisms leading to a-syn aggregation, and the ways to prevent them. Recently, Micro Photon Devices (Bolzano) and the Politecnico di Milano have developed and fabricated a system that quantifies the aggregation state of a-syn via the fluorescence spectrum and lifetime of fluorophore probes directly attached to the protein. The formation of toxic fibrils of a-syn correlates with a decrease in the fluorescence emission (i.e. the fluorescence "lifetime") of the attached fluorescent probes.

Using Fluorescence Lifetime Imaging, researchers will be able to read out the concomitant changes in fluorescence parameters. They will be able to measure the decay profile, over time, of fluorescence lifetime after excitation with a short pulse of light. The action of a potential anti-aggregation agent in living cells can thus be directly assessed using multiparametric imaging.

This capability represents a dramatic step forward in diagnostic capability; researchers can investigate PD's molecular mechanisms at a subcellular level. The system created by Micro Photon Devices and the Politecnico di Milano has now been incorporated into the microscopy setup at Eurac Research, and is currently being tested in collaboration with researchers from the University of Cambridge. Eurac Research was integral in the conception of the project, as the central idea was to produce a new detector appropriate to the specific needs of the research.

DE Fluoreszenzbildgebung um Parkinson-Medikamente zu testen

Ein innovatives Visualisierungsverfahren mit Hilfe eines mikroelektronischen Geräts eröffnet der Parkinsonforschung von Eurac Research ganz neue Möglichkeiten. Das sogenannte Fluorescence Lifetime Imaging wird eingesetzt, um in lebenden Zellen die Auswirkungen bestimmter Substanzen zu beobachten – zum Beispiel den Effekt von Medikamenten auf das Protein „Alpha-Synuclein“, das maßgeblich an der Parkinson-Krankheit beteiligt ist.

IT Fluorescence Lifetime Imaging per testare farmaci per il Parkinson

I ricercatori di Eurac Research hanno contribuito a progettare e realizzare uno strumento che permetterà di sfruttare nuove modalità di imaging. Il lettore di luminescenza è stato inserito in un sistema di Fluorescence Lifetime Imaging che usa cellule vive per testare agenti in diverse situazioni biologiche. Una sperimentazione riguarda gli effetti dei farmaci sull'alfa sinucleina, una proteina associata alla malattia di Parkinson.

15 Jahre biomedizinische Forschung

Am Anfang stand Pionierarbeit: 2001 gab es in Südtirol noch keine biomedizinische Forschung. Heute erzielen die Wissenschaftler von Eurac Research weltweit anerkannte Ergebnisse zu Herz-Kreislauf- und neurologischen Erkrankungen, wobei sie auch den Einfluss von Diabetes und Übergewicht erforschen. Die Zukunft, an der sie arbeiten, heißt Präzisionsmedizin: Therapien, die auf das genetische Profil des Patienten zugeschnitten sind. Welche Wege sich hier auftun, diskutierten die Forscher auf einem zweitägigen Kongress in Bozen mit internationalen Experten.

Mit der Bevölkerungsstudie CHRIS im Vinschgau hat Eurac Research ein wertvolles Instrument geschaffen, um das komplexe Zusammenspiel von Genen, Lebensstil und Umweltbedingungen zu entschlüsseln, das die großen Volkskrankheiten charakterisiert. Bei einer zunehmend älteren Bevölkerung ist dabei die zentrale Frage: Wie ist die menschliche Gesundheit so lange wie möglich zu erhalten? CHRIS liefert nicht nur eine Fülle epidemiologischer und biologischer Daten, sondern eröffnet auch die Möglichkeit, an Trägern seltener Genvarianten vertiefende, langfristige Untersuchungen durchzuführen. „So können wir wichtige Erkenntnisse gewinnen und damit auch für Patienten großen medizinischen Nutzen erzielen“, erklärt der Neurologe Peter Pramstaller.

Gleichzeitig sind die Biologen, Mediziner, Informatiker und Statistiker des Instituts auch in internationale Forschungsnetzwerke eingebunden, etwa in das weltweite Wissenschaftskonsortium CKDGen, das mit großem Erfolg den genetischen Hintergrund chronischer Nierenkrankheiten erforscht. Auch zu den genetischen Ursachen für den plötzlichen Herztod, die Parkinson-Krankheit oder das Syndrom der „unruhigen Beine“ haben Forscher von Eurac Research wichtige Entdeckungen gemacht.

Solche Einblicke ins Erbgut sind die Basis für individualisierte Therapie und Vorbeugung. In Südtirol treibt Eurac Research die Gesundheitsforschung in dieser Richtung voran. Gemeinsam mit Ärzten des Sanitätsbetriebs entwickeln die Wissenschaftler zum Beispiel bessere Behandlungsmethoden für Patienten mit einem hohen Risiko für Herzstillstand.

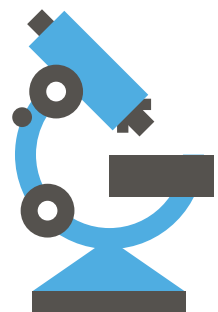
Aus Anlass des Kongresses in Bozen wurde die Broschüre „Biomedical Research in South Tyrol“ veröffentlicht, die demnächst auch auf Deutsch und Italienisch erscheint.

EN Fifteen Years of Biomedical Research

The foundation for biomedical research in South Tyrol was laid in 2001 with the establishment of the Institute for Biomedicine. Today, these researchers study the effects of diabetes and obesity and have achieved internationally-recognised results with their research on cardiovascular and neurological diseases. In the future, precision medicine will be able to provide treatments and prophylaxis based on an individual's genetic profile. The researchers discussed their work with international experts during a conference in Bolzano/Bozen in November 2017.

IT 15 anni di ricerca biomedica

Nel 2001 con l'istituzione dell'Istituto di biomedicina si è posta la base per la ricerca biomedica in Alto Adige. Oggi i ricercatori studiano gli effetti del diabete e del sovrappeso e raggiungono risultati riconosciuti a livello internazionale su malattie cardiovascolari e neurologiche. Il futuro punta alla medicina di precisione per offrire terapie e profilassi basate sul profilo genetico delle persone. I ricercatori ne hanno discusso con esperti internazionali nel corso di un convegno a Bolzano.



Blood Coagulation in Hypothermic Trauma Patients

The mortality rate of alpine accident victims is increased by a combination of hypothermia and impaired blood coagulation. A study at Eurac Research is currently looking into the relationship between coagulopathy and hypothermia to better understand its mechanisms and its role in alpine survival rates.

Hypothermia often sets in for victims of alpine accidents that cause severe trauma—such as falls and avalanches. This not only entails serious and fatal complications, but also aggravates the consequences of the accident. A drop of the core body temperature below 35° C results in an inhibition of cellular and plasmatic coagulation, which leads to increased blood loss and reduced oxygen supply. The combination of hypothermia, coagulopathy and acidosis (high blood acidity) is referred to as the “lethal triad of trauma” and accounts for a very high number of deaths among multiple trauma victims. Hypothermia impairs blood clotting by accelerating the clot’s decay and reducing the activity of the blood platelets. Neither the development nor the extent of the coagulation disorder induced by hypothermia are completely understood.

Bernd Wallner of Eurac Research is currently conducting his PhD investigation into the impairment of blood coagulation due to hypothermia. Healthy volunteers donate blood samples, which are then cooled down to several different temperature levels. The cooled blood is tested for its coagulation activity through various clotting tests and platelets activity assays. In addition to these measurements, the morphological and functional changes of the blood clot and thrombocytes (blood platelets involved in clotting) are also visualised with the help of a confocal microscope.

In a separate research project, Wallner is also examining the interdependency of various associated factors, such as burial by an avalanche, cold season accidents, and traumatic brain injury. For example, hypothermia can also be a protective factor in avalanches because it lowers the oxygen consumption of the brain and other vital organs, thus increasing the survivable burial time of a patient.

DE Blutgerinnung bei unterkühlten Traumapatienten

Bei Unterkühlung tritt eine Beeinträchtigung der Blutgerinnung auf, die die Überlebenschancen von Bergunfallopfern verschlechtern kann. Den genauen Zusammenhang zwischen Hypothermie, gestörter Blutgerinnung und Sterblichkeit untersucht eine Studie von Eurac Research. Dafür werden Blutproben auf verschiedene Temperaturen abgekühlt und diversen Messungen, etwa der Anzahl der Blutplättchen, und Gerinnungstests unterzogen.

IT Coagulazione del sangue nei pazienti ipotermici

Il tasso di mortalità delle vittime di incidenti alpini sale quando ipotermia e compromessa coagulazione sanguigna si combinano. Uno studio di Eurac Research analizza la relazione tra coagulopatia e ipotermia per capire meglio come funzioni questo nesso e che ruolo rivesta nella probabilità di sopravvivenza. I campioni di sangue vengono congelati a diverse temperature, poi se ne verifica la capacità di coagulazione attraverso vari test e analisi delle piastrine.

Schmerzstudie an Skifahrern

Unfallopfern werden starke Schmerzmittel in der Regel intravenös verabreicht, doch in unwegsamem Gelände und bei widriger Witterung kann dies schwierig oder sogar unmöglich sein: Sind die Venen durch die Kälte verengt, gelingt es oft nicht, einen Zugang zu legen, auch begeben die Retter sich bei der Bergung manchmal selbst in große Gefahr und es ist keine Zeit zu verlieren. In solchen Situationen könnte es sehr hilfreich sein, die Schmerzen durch eine Tablette unter der Zunge zu stillen. Ob dies für die Patienten genauso schnell wirksam, sicher und verträglich ist wie die intravenöse Verabreichung, untersucht Eurac Research mit einer Studie an verletzten Skifahrern.

Ort der Untersuchung ist das Skigebiet Kronplatz, die Studienteilnehmer sind Skifahrer, die sich an Armen oder Beinen verletzt haben, moderate bis starke Schmerzen verspüren und nach eingehender Information freiwillig an der Studie teilnehmen. An ihnen wird das Schmerzmittel Fentanyl in Tablettenform getestet: Ursprünglich für Krebspatienten entwickelt, wird es neuerdings auch in der Notfallmedizin oral verabreicht und gelangt über die Schleimhäute in die Blutbahn. Die Studie konzentriert sich auf die Wirksamkeit und die Nebenwirkungen: Ist die schmerzlindernde Wirkung vergleichbar mit der intravenösen Verabreichung? Verlangsamt sich die Atmung des Patienten? Fällt der Blutdruck ab? Verspürt er Übelkeit, Juckreiz oder Schwindel? Solche und andere Symptome überprüfen die Ärzte vom Krankenhaus Bruneck, die an der Untersuchung beteiligt sind und das Schmerzmittel direkt auf der Piste verabreichen.

Um sicherzugehen, dass die Auswertung objektiv ist und nicht von Erwartungshaltungen beeinflusst, wird jedem Patienten sowohl eine Flüssigkeit in die Vene gespritzt als auch eine Tablette unter die Zunge gelegt – wo die Wirksubstanz steckt, wissen weder Arzt noch Patient.

EN Mountain Accidents: A Study on Pain

Accident victims are usually given powerful painkillers intravenously, but doing so in remote areas or in adverse weather conditions is difficult, if not impossible. When the cold air narrows veins, injections cannot be administered. Eurac Research is conducting a study on skiing accident victims to see if dissolving pills under the tongues of these patients could be as safe as intravenous administration.

IT Incidenti in montagna: studio sul dolore

Alle vittime di incidenti solitamente gli antidolorifici più potenti vengono somministrati per via venosa, ma farlo in aree remote o in condizioni meteo avverse è difficile, se non impossibile. Se il freddo fa restringere le vene, non si riesce a fare un'iniezione. In questi casi sarebbe d'aiuto calmare il dolore con pastiglie da sciogliere sotto la lingua. Eurac Research sta conducendo uno studio sulle vittime di incidenti sciistici per verificare se questo metodo sia sicuro quanto la somministrazione intravenosa.



Respirare sotto la neve

Le vittime di valanghe muoiono molto spesso per asfissia. La neve schiaccia loro il torace e intasa le vie respiratorie e anche se sono così fortunate da avere una piccola sacca d'aria sul volto, finiscono con il saturarla con l'anidride carbonica espirata. Per studiare come funziona la ventilazione sotto la neve e testare un dispositivo che permette di respirare più a lungo, una équipe coordinata da Eurac Research ha svolto delle prove a Cervinia. I risultati preliminari sono incoraggianti.

Sepolti sotto una valanga simulata, a 2500 metri di quota, i 12 volontari si sono sottoposti a due prove. Nella prima respiravano in una cavità d'aria da un litro creata artificialmente sotto la neve. Nella seconda non avevano una cavità, ma indossavano il dispositivo Air Safe, uno zaino con un boccaglio e un sistema di tubi che "aspira" nella parte anteriore del corpo l'aria presente nella valanga (fino al 60 per cento del volume) ed espelle l'aria espirata, satura di anidride carbonica, alle spalle. In superficie, gli specialisti di Eurac Research, del Centro di medicina di montagna dell'Ausl Valle d'Aosta, del CNR e dell'Università di Padova, coadiuvati dal Soccorso alpino, monitoravano le reazioni dei volontari, pronti ad estrarli. I risultati preliminari promuovono il dispositivo Air Safe. "Nella prova in cui lo indossavano, i volontari hanno resistito più a lungo sotto la neve, in alcuni casi anche fino al tempo massimo previsto di 60 minuti e chi ha interrotto prima il test lo ha fatto perché in preda all'ansia, crampi o brividi di freddo, non per mancanza d'ossigeno", annuncia Giacomo Strapazzon, tra i coordinatori scientifici dello studio. Nei test senza lo strumento che assiste al respiro gran parte delle prove è stata sospesa dopo breve tempo poiché la carenza di ossigeno e l'accumulo di CO₂ raggiungevano rapidamente i criteri di stop approvati dal comitato etico.

Nei prossimi mesi, gli studiosi renderanno noti anche i risultati delle analisi sui dati su cuore, polmoni, saturazione cerebrale e stress ossidativo del sangue. "Per esempio, vogliamo verificare se e come si presentino eventuali sintomi precoci dell'edema polmonare", anticipa Strapazzon.

EN Breathing Under the Snow

Avalanche victims often die from asphyxiation when snow crushes their chest and clogs up the airways. Even if they are lucky enough to have a small air pocket in front of their face, it eventually becomes saturated with the carbon dioxide they breath out. A team coordinated by Eurac Research has conducted tests in Cervinia to study the process of ventilation under the snow and evaluate a device that allows the victim to breath for longer.

DE Atmen unter Schnee

Lawinenopfer sterben meist durch Ersticken: Der Schnee drückt auf den Brustkorb und verstopft die Atemwege, und selbst wenn der Verschüttete in einen kleinen Hohlraum atmen kann, vergiftet das ausgeatmete CO₂ die wenige vorhandene Luft. Wie die Atmung unter Schnee genau funktioniert, untersuchten die Notfallmediziner mit einem Team italienischer Experten in einer Studie in Cervinia. Dabei testeten sie ein Gerät, mit dem Verschüttete länger Luft bekommen sollen.

Archaeology of Disease in South Tyrol

Hundreds of human skeletons dated to the Early Middle Ages have been found in different archaeological sites in South Tyrol. By examining 150 of these skeletons through a combination of anthropology and paleopathology, this Eurac Research study intends to understand the health of past populations from the region. The findings are helping to trace a historical relationship between living conditions, diet, and territory.

Since 2014, scientists from Eurac Research have been examining the bones of more than 150 human skeletons found in burial sites that have been dated to the Early Middle Ages (400-1000 AD). By using an interdisciplinary approach combining archaeology, anthropology and paleopathology to carefully examine pathological signs at the skeletal level, such as bone formations or deterioration, the researchers are attempting to understand the health condition of the people who lived in South Tyrol at the time.

Evidence of different diseases were found during the study: oral infections (abscesses, dental cavities, parodontosis) or bone infections (osteomyelitis), degenerative joints or vertebral diseases (osteoarthritis, spondyloarthritis), nutritional and metabolic disorders, and traumatic injuries.

For the first time, the study's recent paleopathological investigations have unearthed potential cases of scurvy in infants in Early Medieval South Tyrol. The presence of scurvy shows a vitamin C deficiency in these children (vitamin C is acquired from fresh fruits and vegetables, or, in smaller amounts, from milk, meat, and fish). This nutritional stress might indicate that the people who were found in these South Tyrolean regions probably suffered from a prolonged famine caused by harsh winters or other socio-cultural events. In scurvy cases like these, the geographical and historical contexts provide essential information needed to make an accurate diagnosis. Data collecting and analysis are still ongoing, and include research into older time periods. In the future, this anthropological and paleopathological picture will help us understand the past relationships between diet and health in the territory of South Tyrol.

DE Paläopathologie im mittelalterlichen Südtirol

Hunderte menschliche Skelette aus dem Frühmittelalter, gefunden an Ausgrabungsorten in ganz Südtirol, sind das Forschungsobjekt einer großen Studie zur Gesundheit der regionalen Bevölkerung jener Zeit. Indem die Forscher Anthropologie und Paläopathologie verbinden, spüren sie der Beziehung zwischen Lebensbedingungen, Ernährung und dem Gebiet nach. Zum Beispiel hängen mögliche Fälle von Skorbut bei Südtiroler Kindern, für die es Hinweise gibt, wahrscheinlich mit lokalen Hungersnöten zusammen.

IT Paleopatologia in Alto Adige

Centinaia di resti umani risalenti all'Alto Medioevo sono stati rinvenuti in diversi siti archeologici in Alto Adige. L'analisi antropologica e paleopatologica degli scheletri, permette di ricostruire le condizioni di salute delle popolazioni che abitavano questa regione in passato. Per esempio, sono stati individuati possibili casi di scorbutto infantile, probabilmente conseguenti a malnutrizione e/o a carestia. Lo studio si propone di ricostruire le condizioni di vita e di salute delle popolazioni che abitavano questo territorio durante l'Alto Medioevo.

Atherosklerose in ägyptischen Mumien: Welche Rolle spielen die Gene?

Seit Forscher mittels Computertomografie in Mumien verschiedener Kulturen und Epochen verkalkte Gefäße nachwiesen, hat sich unsere Vorstellung von Atherosklerose gewandelt: Die häufigste Todesursache in der westlichen Welt ist keine Zivilisationskrankheit, sondern begleitet die Menschheit seit mindestens 5000 Jahren. Damit erhält die Frage nach genetischen Risikofaktoren noch größere Bedeutung. Ihr gehen derzeit die Paläogenetiker von Eurac Research auf den Grund, indem sie DNA-Proben von Mumien der ägyptischen Museen in Berlin und Turin untersuchen.

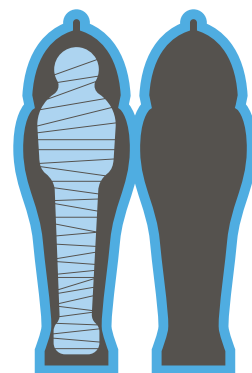
Bislang gab es kaum Genanalysen an ägyptischen Mumien: Hitze beschleunigt den Zerfall der DNA, die kurzen Fragmente, die erhalten sind, können erst mit den neuesten Sequenzierungsverfahren erfasst und analysiert werden. Um dabei gezielt nach Genvarianten zu suchen, die bei der Entstehung von Atherosklerose eine Rolle spielen, stützen die Forscher sich auf aktuelle medizinische Studien. Von 43 ägyptischen Mumien – die ältesten fast 7000 Jahre alt, die jüngsten 1500 – entnahmen die Wissenschaftler in Berlin endoskopisch gestützt winzige Proben. Das Gleiche taten sie in Turin. Alle Mumien werden zudem mit dem Computertomografen untersucht: War die Mumie bei ihrem Tod alt genug, um in den Gefäßwänden schon sichtbare Verkalkungen zu entwickeln, können die Forscher so den Zusammenhang zwischen genetischer Veranlagung und Arterienzustand herstellen. Indem sie die Ergebnisse mit der damaligen Lebensweise in Verbindung bringen, hoffen sie wesentlich zum Verständnis von Krankheitsentstehung und –verlauf beizutragen. Die Wissenschaftler nutzen das wertvolle genetische Material aber auch für weitere Untersuchungen, zum Beispiel zur genetischen Herkunft der Mumie. Die Herkunftsanalyse hat dabei auch deshalb große Bedeutung, weil sie den Verdacht auf moderne Kontamination entkräftet und somit die Aussagekraft aller anderen Ergebnisse bestärkt.

EN Atherosclerosis in Egyptian Mummies

Computer tomography (CT) scans have allowed researchers to find calcification on blood vessel walls belonging to mummies of different time periods and cultures. This changed our notion of atherosclerosis (narrowing of arteries) which is the major cause of death in the Western world. Rather than a consequence of civilization, the disease has been present for at least 5,000 years. Genetic risk factors are therefore a key element. Paleo-geneticists at Eurac Research are studying these risk factors, analysing DNA samples from Egyptian mummies in Berlin and Turin.

IT Aterosclerosi nelle mummie egizie

Da quando, grazie alle TAC (Tomografia Assiale Computerizzata), i ricercatori hanno riscontrato in mummie di diverse epoche e culture calcificazioni nei vasi sanguigni, la concezione dell'aterosclerosi è cambiata: la malattia che causa il maggior numero di morti in occidente non è un effetto della civilizzazione, ma accompagna l'umanità da almeno 5000 anni. I fattori di rischio genetici sono un elemento chiave. I paleogenetisti di Eurac Research li studiano, analizzando campioni di DNA di mummie egizie conservate nei musei di Berlino e di Torino.



Mummie egizie di Torino: Tac e campionamenti

Gli scienziati di Eurac Research, a capo di una équipe di ricerca internazionale, hanno condotto una intensa campagna di test sulle 114 mummie conservate al Museo egizio, a Torino. I risultati delle Tac e delle analisi dei campioni prelevati daranno informazioni più precise sui singoli reperti e apriranno una miriade di filoni di ricerca sulla storia egizia dall'epoca predinastica a quella romana.

Le mummie dell'architetto Kha e di sua moglie Merit sono solo i reperti più noti. Il Museo egizio, a Torino, il più importante al mondo dopo quello del Cairo, ospita 114 mummie che hanno tra i 6000 e i 2000 anni. Alcune di queste non erano mai state nemmeno spostate fino a quando un gruppo di ricerca guidato dagli esperti di Eurac Research non ha avviato il "ME Mummy Project". Dalla mattina del 27 marzo 2017, di buon'ora, per due settimane i ricercatori hanno scortato mummie e sarcofagi interi su un enorme camion proveniente dall'Olanda e contenente un sofisticato macchinario per la Tac. Quando le condizioni lo permettevano, hanno anche prelevato dalle mummie campioni di tessuto in modo diretto o usando un endoscopio. "Si è trattato di un'operazione straordinaria, ma il bello comincia ora", annuncia Marco Samadelli, esperto di conservazione. "Nei prossimi mesi e anni sottoporremo i campioni a varie analisi e daremo così risposta a molte domande per le quali l'archeologia ha fornito spiegazioni solo parziali. Per esempio, scopriremo esattamente cosa mangiavano gli egizi nelle varie epoche, di cosa si ammalavano, come venivano imbalsamati".




La ricerca, svolta sotto l'attenta supervisione della Sovrintendenza archeologica del Piemonte e della direzione del Museo, coinvolge biologi, medici, radiologi, antropologi e conservatori di varie università tedesche e austriache e del team medico statunitense del gruppo Horus.

EN CT and Sampling for the Egyptian Mummies in Turin

Scientists at Eurac Research led an international research team to test 114 mummies at the Egyptian Museum in Turin. The results of the CT scans and the analysis of collected samples will give more precise information on individual archaeological finds and open up a myriad of research possibilities on Egyptian history—from pre-dynastic to Roman times.

DE CT und Beprobungen für die ägyptischen Mumien von Turin

Unter der wissenschaftlichen Leitung von Eurac Research unterzieht ein internationales Forscherteam die 114 Mumien des Ägyptischen Museums von Turin einer Reihe intensiver Untersuchungen. Durch CT-Scans und Probenanalysen gewinnen die Forscher nicht nur präzisere Informationen über die einzelnen Mumien – die Ergebnisse ermöglichen auch eine Vielzahl neuer Forschungen zur ägyptischen Geschichte von 4000 v. Christus bis zur Römerzeit.

Test svolto	Indagini da compiere	Risultati attesi
 TAC	Analisi delle immagini	Calcificazioni, neoplasie, residui dei processi di imbalsamazione
 Prelievo di campioni di tessuto, minimo 200 mg	Datazione carbonio 14	Inquadramento storico della mummia
	Analisi del DNA antico	Malattie, dieta, tratti somatici, legami parentali
	Analisi degli isotopi	Abitudini alimentari
	Misurazione dell'attività dell'acqua (AW)	Stato di conservazione
 Prelievo di campioni dalla superficie dei reperti	Test microbiologici ambientali su spore e muffe	Stato di conservazione

Making the Intangible Tangible



Creating maps of the intangible aesthetic experiences offered by mountain regions (supply) and the humans who benefit from them (demand) is essential for understanding the function and management of Cultural Ecosystem Services (CES). A study at Eurac Research used recent advances in geo information systems to create a successful model for mapping the supply and demand chain of the aesthetic services and benefits in mountain environments.

Mountain landscapes are a remarkable source of aesthetic experiences and therefore represent a fundamental environmental and socio-economic resource for local communities and the tourism industry. In recent decades, rising impact from human activity has led to increased need for holistic land management solutions that not only consider natural capital and biodiversity, but also take account how the intangible cultural benefits of these ecosystems interact with surrounding socio-ecological systems.

Researcher Lukas Egarter Vigl from Eurac Research was first author on a paper published in the January 2017 issue of *Science of the Total Environment*, an international journal for scientific research into the environment and its relationship with humankind. Their findings provided explicit spatial mapping of the capacity, flow, and demand of the supply chain of Cultural Ecosystem Services. The developed model was applied to the Puez-Geisler Nature Park, part of the Dolomites UNESCO World Heritage Site located in northern Italy. Existing land-use data was used to determine the landscape's potential to deliver services. The flow of these services was measured along two recreational flow paths of aesthetic experiences: hiking trails and ski runs. Demand for these aesthetic experiences was measured through viewer days along recreational routes, which indicated the visitation rate to the natural area.

The researchers were able to demonstrate that the model has the potential to inform decision-makers on the status of mountain landscapes in terms of over and undersupply of scenic quality. This is essential when considering the need for sustainable development strategies for mountain landscapes and the development of visitor regulation strategies in protected areas.

DE Schwer Greifbares greifbar machen

Die Bedeutung von Natur für menschliches Wohlbefinden umfasst auch immaterielle Werte, etwa die ästhetische Erfahrung, die Berge bieten. Für ein besseres Verständnis und Management dieser kulturellen Ökosystemdienstleistungen ist es essentiell, Angebot (Naturerfahrung) und Nachfrage (die sie genießenden Menschen) zu kartieren. Am Fall des Naturparks Puez-Geisler entwickelte der Forscher Lukas Egarter Vigl ein Analysemodell, das die gesamte Lieferkette von Ökosystemdienstleistungen einbezieht.

IT Rendere tangibile l'intangibile

Creare mappe che rappresentino al tempo stesso l'esperienza estetica intangibile che le regioni montane forniscono (offerta) e le persone che ne beneficiano (domanda) è essenziale per comprendere la funzione dei servizi culturali ecosistemici e poterli gestire bene. Il ricercatore Lukas Egarter Vigl di Eurac Research ha sviluppato un modello per mappare capacità, flusso e domanda dei servizi culturali ecosistemici del Parco naturale Puez-Odle.

Biodiversität erheben, erforschen, erleben



„Das Matschertal im Vinschgau ist ein Brennpunkt der Biodiversität: Durch die Vielfalt der Landschaft und die besonderen klimatischen Bedingungen findet sich hier auf engem Raum eine Vielzahl charakteristischer Tier- und Pflanzenarten. Eingeladen von Eurac Research machten Forscher aus dem gesamten Alpenraum in einer einmaligen Aktion Inventur dieses Reichums, mit hoch interessanten Funden. Die Bestandaufnahme ist Teil der ökologischen Langzeitforschung, die Eurac Research seit Jahren in dem Tal betreibt. Gemeinsam mit dem „Naturmuseum Südtirol“ wurden zudem Aktivitäten angeboten, um vor allem bei Kindern und Jugendlichen das Bewusstsein für die biologische Vielfalt in ihrer Heimat zu wecken.

Mit Höhen von 1000 bis 3700 Metern, Lärchen- und Zirbenwäldern, Trockenwiesen und landwirtschaftlich genutzten Flächen, einem Gletscher und dem daraus abfließendem Bach, versammelt das Matschertal eine große Vielfalt an Lebensräumen. In einer intensiven Forschungswoche im Juni 2016 haben über 30 Botaniker, Zoologen und Ökologen diese Habitate systematisch durchforstet und mehr als 1000 Tierarten erfasst und beschrieben, darunter neun Neufunde für Südtirol und einer für den gesamten Alpenraum. Die Daten sind nicht nur interessant für Vergleiche mit anderen Regionen, sondern auch unschätzbare Grundlage, um in Zukunft Veränderungen feststellen zu können und zu verstehen, wie Klimaveränderungen und menschliche Eingriffe – etwa durch landwirtschaftliche Nutzung – sich auf die Artenvielfalt auswirken. Gerade in Bezug auf den Klimawandel ist das Matschertal eine Art Zukunftslabor: Als eines der niederschlagärmsten Gebiete im Alpenraum weist es heute schon Bedingungen auf, wie sie auch in anderen Regionen eintreten werden. Eurac Research beobachtet die ökologische Entwicklung in dem Tal deshalb schon seit bald zehn Jahren durch die Messung von über 50 Parametern an 30 ausgewählten Standorten.

An die 4000 Werte fließen pro Stunde an Eurac Research – dank der Qualität dieser Forschungsarbeit wurde das Matschertal in das renommierte internationale LTER-Netzwerk aufgenommen, das herausragende Standorte langfristiger ökologischer Forschung (long term ecological research) vereint.

EN Seizing, Studying and Living Biodiversity

The Val di Mazia in Venosta has a high concentration of biodiversity within a limited area. At the invitation of Eurac Research, researchers from all over the Alps catalogued this ecological wealth and discovered new specimens in South Tyrol. The inventory is part of the long-term ecological research that Eurac Research leads in the valley. Together with the Museum of Natural Science in Bolzano/Bozen, activities were also organised to sensitise the inhabitants of the valley to the biodiversity around them.

IT Cogliere, studiare e vivere la biodiversità

La val di Mazia, in Venosta, racchiude un concentrato di biodiversità in un territorio circoscritto. Nel giugno 2016, invitati da Eurac Research, ricercatori da tutto l'arco alpino hanno catalogato questa ricchezza, scoprendo nuovi esemplari per l'Alto Adige. L'inventario è parte della ricerca ecologica di lungo periodo che Eurac Research conduce in valle. Assieme al Museo di scienze naturali sono inoltre state organizzate attività per sensibilizzare gli abitanti della valle alla biodiversità.

Neufunde



Opetiopalpus sabulosus,
Cloridae, *Buntkäfer*



Thanatus arenarius,
Philodromidae, *Laufspinnen*



Parasyrisca vinosa, Gnaphosidae,
Plattbauchspinnen



Styloctetor romanus, Linyphiidae,
Unterfamilie Erigoninae, *Zwergspinnen*



Plataraea dubiosa
Staphilinidae, *Kurzflügelkäfer*



Lordithon bimaculatus
Staphilinidae, *Kurzflügelkäfer*



Licnodamaeus costula,
Acari, *Milben*



Paratritia baloghi,
Acari, *Milben*



Phauloppia rauschenensis,
Acari, *Milben*



Prosimulium tomosvaryi,
Simuliidae, *Kriebelmücken*

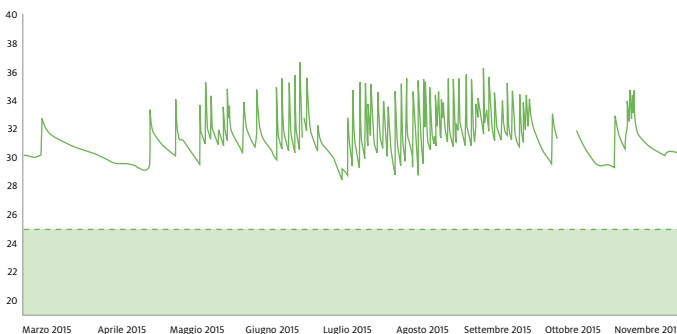
Irrigare meno per irrigare meglio

Irrigare i meli è necessario, ma irrigarli troppo fa male. Fa male all'ambiente perché si spreca acqua; fa male alle piante che in apparenza crescono più rigogliose, ma rischiano di dare frutti di qualità inferiore, per esempio che si ammaccano più facilmente. Per aiutare i melicoltori a irrigare in modo più efficace, i ricercatori di Eurac Research hanno messo a punto un sistema che calcola di quanta acqua le loro piante abbiano veramente bisogno.

Sul balcone si fa la prova del dito: lo si affonda nel terriccio del vaso di basilico e si “sente” se sia il momento di annaffiare. Ma come si fa con i 18.400 ettari di meleti di cui è rivestito l'Alto Adige? Da qualche anno il Centro di consulenza per la fruttivita-coltura dell'Alto Adige mette a disposizione dei suoi 6.800 soci uno strumento per calcolare quanto irrigare i loro campi sulla base delle precipitazioni e della temperatura. Ma i tecnici non erano soddisfatti: ai ricercatori di Eurac Research hanno chiesto di convalidare scientificamente le loro stime per perfezionare i consigli dati ai contadini.

Tra il 2015 e il 2016, i ricercatori hanno così attrezzato con più di 38 sensori 19 stazioni climatiche tra Salorno e Laces: hanno misurato l'umidità del terreno a una profondità tra i 20 e 40 centimetri e hanno incrociato questi dati con altri, per esempio riguardanti la composizione del suolo. Grazie a queste misurazioni a campione, gli scienziati hanno disegnato un modello che rivede al ribasso le stime: spesso i campi vengono irrigati oltre le reali esigenze.

Secondo le valutazioni degli ecologi Georg Niedrist e Stefano Della Chiesa, in certi meleti sarebbe possibile ridurre del 50 per cento il consumo di acqua senza compromettere la qualità delle mele. I ricercatori vogliono estendere le aree di monitoraggio e stanno lavorando assieme ai tecnici del Centro di consulenza a un sistema di allerta che avvisi via sms gli agricoltori quando i valori di umidità dei loro campi si avvicinano alla soglia critica. La ricerca è parte del progetto pluriennale Monalisa, www.monalisa-project.eu.



EN Irrigating Less to Irrigate Better

Irrigating apple trees is necessary, but too much water can be a bad thing. It's bad for the environment because it wastes water, and it because it causes the trees' fruit to bruise more easily. To help apple growers to irrigate more efficiently, researchers at Eurac Research have developed a system that calculates how much water their orchards really need. The research is part of a multi-year project known as 'Monalisa'.

DE Bewässerung: Weniger ist manchmal mehr

Apfelplantagen zu bewässern ist notwendig, doch zu viel Wasser schadet der Obstqualität – die Früchte bekommen leichter Druckstellen – und ist daher Verschwendung. Im Rahmen des mehrjährigen Forschungsprojekts Monalisa entwickelten Wissenschaftler von Eurac Research deshalb ein System, das den tatsächlichen Wasserbedarf der Bäume berechnet und so den Bauern hilft, effizient zu bewässern.

Nel caldo 2015 i contadini hanno irrigato con generosità i loro frutteti. Questo grafico mostra come in caso di terreno più argilloso (queste misurazioni sono state fatte a Cornaiano) il margine di risparmio sarebbe stato alto: l'umidità del suolo non si è mai lontanamente avvicinata alla soglia di sofferenza, pari al 25 per cento.

Monitoring Ecosystems and their Benefits

Eurac Research is one of 47 partners of the Horizon 2020 flagship project, ECOPOTENTIAL, whose aim is to develop new tools and products that can help us better understand and monitor changes in ecosystems, as well as the benefits they provide to society. The research takes place in targeted Protected Areas and studies cross-scale ecological and geosphere-biosphere interactions that span from the local to the continental.

ECOPOTENTIAL uses recent scientific advances in Earth Observation (EO) to collect and convert EO data into useful information that is essential for community decision-makers and scientists to better protect the health of ecosystems in the face of increasing human activity and climate change. The project consortium comprises 47 European and international partners, including research institutes, universities, national and European space agencies, international bodies and SMEs. The project focuses its activities and pilot actions on a set of internationally-recognised Protected Areas in Europe and beyond, including mountain, arid and semi-arid, as well as coastal and marine ecosystems. It blends Earth Observations from remote sensing and field measurements, data analysis and modelling of current and future ecosystem conditions and services.

Eurac Research specifically addresses mountain environments, providing a variety of different environmental parameters, such as snow cover duration, soil moisture content, and forest disturbance patterns. These parameters serve not only to model biodiversity abundance and distribution, but also contribute to the design, development and validation of the system EO Data for Ecosystem Monitoring (EODESM), which classifies land covers from EO-derived biophysical (soil moisture content, snow cover duration, etc.) and thematic information (forest cover, forest type, etc.).

EO data archived at Eurac Research and EODESM will be shared with the partners by means of the PaaS (Platform as a Service) deployed directly on Eurac Research's computer infrastructure, orchestrated by the general project Cloud Platform.

DE Ökosysteme und ihren Nutzen monitorieren

Eurac Research ist einer von 47 Partnern des großen EU-geförderten Projekts ECOPOTENTIAL. Ziel ist es, Erdbeobachtung, Datenanalyse und Modellierungen zu verbinden und weiter zu entwickeln, um Ökosysteme, ihre Veränderungen und ihren Nutzen für den Menschen umfassend zu erforschen. An Schutzgebieten in ganz Europa untersuchen die Forscher Wechselwirkungen zwischen Geo- und Biosphäre.

IT Monitorare gli ecosistemi e i loro benefici

Eurac Research è uno dei 47 partner del progetto Horizon 2020 ECOPOTENTIAL, il cui scopo è quello di sviluppare nuovi strumenti e prodotti per comprendere e monitorare i cambiamenti negli ecosistemi e i benefici che offrono alla società. La ricerca si focalizza su specifiche aree protette in tutta Europa per studiare le interazioni ecologiche a diverse scale.

Klimafolgen abschätzen: Beratung des Bundesumweltamts

In Sachen Klimapolitik ist Deutschland Vorreiter: In kaum einem Land sonst wurde schon so genau analysiert, wie der Klimawandel sich auswirken kann und wie man sich am besten dagegen rüstet. Um diese Anpassungsstrategie weiter zu verbessern, griff das Umweltbundesamt 2016 zweimal auf die Experten von Eurac Research zurück. Zum einen legten die Forscher in detaillierten Wirkungsketten dar, welche Klimafolgen in spezifischen Sektoren zu erwarten sind, wie sie zustande kommen und wie sie zusammenhängen. In einer zweiten Studie analysierten sie, inwieweit Satellitendaten und Services aus dem europäischen Copernicus-Programm zum Monitoring von Klimafolgen beitragen können.

Die schematische Darstellung in Wirkungsketten – eine von Eurac Research entwickelte Methode – hat sich bewährt, um die komplexen Beziehungen zwischen klimatischen Einflüssen, Klimawirkungen und regionalen Gegebenheiten aufzuschlüsseln. 15 Handlungsfelder definiert die „Deutsche Anpassungsstrategie an den Klimawandel“ (z.B. Landwirtschaft, menschliche Gesundheit, Verkehr...), und für jeden dieser Sektoren haben die Forscher sämtliche mögliche Klimafolgen und die Zusammenhänge zwischen ihnen dargestellt. Die Analyse dient dem Umweltbundesamt als Grundlage für weitere Studien, um schließlich die richtigen praktischen Entscheidungen zur Anpassung an den Klimawandel zu treffen.

In einer zweiten Untersuchung gingen die Forscher der Frage nach, wie Satellitendaten und Services aus dem europäischen Erdbeobachtungsprogramm Copernicus bestmöglich nutzbar gemacht werden können, um sowohl Klimafolgen als auch die Wirkung von Anpassungsmaßnahmen zu überwachen. Derzeit wird das Potenzial von Copernicus nicht ausgeschöpft, wie die Forscher zeigten. Die Wissenschaftler sprechen in der Untersuchung Empfehlungen zur Weiterentwicklung sowohl der Indikatoren wie auch des Copernicus-Services aus, um das Programm gezielter für die Abschätzung von Klimafolgen zu nutzen.

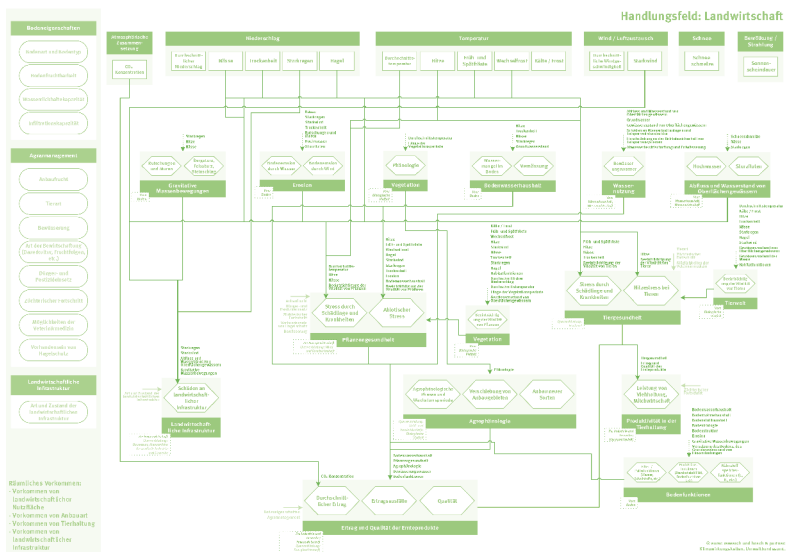
Die Klimafolgen für verschiedene Sektoren und ihre Zusammenhänge darzustellen, ergibt hochkomplexe Diagramme.

EN Climate: Advising the German Environment Agency

In order to improve strategies for adapting to climate change, in 2016 the German Environmental Agency turned for a second time to the experts at Eurac Research. The researchers gave a detailed description of the so-called “impact chains”—what consequences to expect in different sectors, how they will occur, and how they are related. In a second study, they explained how satellite data and services of the EU program Copernicus can contribute to monitoring climate change.

IT Clima: consulenza all’Agenzia per l’ambiente tedesca

Per migliorare le strategie di adattamento ai cambiamenti climatici, nel 2016 l’Agenzia per l’ambiente tedesca si è rivolta per la seconda volta agli esperti di Eurac Research. I ricercatori hanno esposto in dettagliate “catene di impatti climatici” quali conseguenze aspettarsi in diversi settori, come si manifesteranno, e come siano correlate. In un secondo studio hanno spiegato come dati satellitari e servizi del servizio europeo Copernicus possano contribuire al monitoraggio degli effetti del cambiamento climatico.



Alpi: un book fotografico speciale per controllare come cambiano

Una tromba d'aria, una nevicata, una frana: la natura intorno a noi cambia di continuo. Misurare con precisione e tempismo questi cambiamenti è utile per intervenire con criterio in caso di disastri e per sfruttare con più oculatezza le risorse. Gli esperti di telerilevamento di Eurac Research, in collaborazione con altri partner in un progetto finanziato dall'Agenzia spaziale europea, propongono una soluzione: immortalare le Alpi almeno una volta alla settimana in un'immagine satellitare ad alta risoluzione.

Una tromba d'aria spazza una valle alpina, cadono degli alberi, molti rami si spezzano, alcune reti paramassi cedono. Per valutare i danni, i forestali escono in avanscoperta. Il loro è un lavoro lungo e rischioso. Per integrarlo e renderlo più preciso, aiutano i dati satellitari: confrontando due immagini pre e post evento, ogni dettaglio appare nitido e quantificabile. "Finora non esistevano immagini a risoluzione sufficiente e a intervalli temporali regolari. Con il nostro studio abbiamo sviluppato un software che elabora i dati forniti dai satelliti europei Sentinel e produce un'immagine delle Alpi ogni sei giorni, con una risoluzione di 10-20 metri", annuncia Claudia Notarnicola, fisica impegnata nel progetto europeo SEOM COMMONS che vede, al fianco di Eurac Research, il CNR-IRPI e l'azienda francese CLS.

Le immagini così preparate servono per misurare l'impatto di un evento specifico come una catastrofe naturale, ma anche per monitorare cambiamenti più lenti, per esempio un parassita che si diffonde in un bosco o l'andamento della copertura nevosa.

Il software messo a punto dai ricercatori sfrutta sia dati ottici, sia dati radar. In questo modo, in un'unica immagine si sommano informazioni diverse. "Nel caso della neve, i dati ottici ci fanno visualizzare l'estensione della copertura, mentre con i dati radar ne verifichiamo la tipologia, cioè se è asciutta o più bagnata – e quindi presumibilmente più prossima alla fusione", spiega Carlo Marin, ingegnere delle telecomunicazioni.

Le immagini sviluppate nella cornice del progetto SEOM COMMONS confluiscono nella piattaforma online Sentinel Alpine Observatory.

EN The Alps: a special photo book to control how they change

The nature of the Alps is constantly changing. Measuring these changes in an accurate and timely way is useful in order to manage natural disasters such as snowstorms and avalanches and to leverage resources more wisely. In a project funded by the European Space Agency, remote sensing experts from Eurac Research collaborated with other European partners propose to use high-resolution satellite sensors to capture weekly images of the Alps.

DE Alpen: über Veränderungen laufend im Bild

Windhosen, Schneefälle, Erdbeben: Die Natur um uns herum wandelt sich ständig. Würden diese Veränderungen regelmäßig und präzise gemessen, könnte man sparsamer mit Ressourcen umgehen und im Katastrophenfall gezielter eingreifen. Finanziert von der europäischen Weltraumorganisation haben die Fernerkundungsexperten von Eurac Research mit Projektpartnern an einer Lösung gearbeitet: Sie schlagen vor, das Bild der Alpen wöchentlich in einer hochauflösenden Satellitenaufnahme festzuhalten.

The Impact of AirBnB on Tourism

Despite the exponential growth of the home-sharing platform AirBnB, only a handful of regional studies characterise its economic impact for municipal decision-makers. A 12-month study of the effect of AirBnB on tourism and the economy in Western Australia is helping to sift through fact and fiction. The study could potentially help also other tourism stakeholders and policymakers in South Tyrol estimate the impact and shape their own regulatory response.

The phenomenal growth of the internet home-sharing platform AirBnB is also a reality in Western Australia (WA). Yet despite the (potential) impact of AirBnB on WA tourism and the wider economy, data on the size and impact of the company is scant. A project between Eurac Research and Curtin University (Perth) tried to fill that gap. Running from May 2016 to April 2017, it collected data on supply and demand statistics, stakeholder perceptions, as well as from a ten-city survey of current regulatory practices.

In terms of supply, the team led by Michael Volgger (Eurac Research) and Christof Pforr (Curtin University) looked at AirBnB hosting offers in WA to characterise their structure. Preliminary results show that, in WA, AirBnB can be categorised as a shared economy of exponential growth (currently 5 percent per month). The vast majority of hosts (82 percent) are private owners with single listings, and most of those owners are renting homes (49 percent), as opposed to apartments (28 percent).

From the perspective of demand, most users (10 percent) are families, friends or couples looking for affordable holiday accommodations in locations with the most AirBnB listings. More guests came from countries that have a greater relative availability of online services, and where there is an increased propensity to use such services.

The researchers also did a comparative study of regulatory actions in ten different cities worldwide to find out what current instruments are used to preserve a healthy ecology of tourism offers. For example, in London, UK, politicians are experimenting with placing annual ceilings on maximum rental days (90 days), while other cities are setting limits on AirBnB's rental prices so that they do not exceed the rates established by municipal rental evaluations.

DE Die Auswirkungen von AirBnB auf den Tourismus

Trotz der enormen Expansion des Onlineübernachtungsservices AirBnB gibt es nur wenige regionale Untersuchungen dazu, welche Folgen dies für regulatorische Entscheidungen haben kann. Eine Studie zu den Auswirkungen von AirBnB auf den Tourismus und die Wirtschaft in Westaustralien liefert Fakten, die auch Tourismusunternehmern und Politikern in Südtirol helfen können, das neue Tourismusmodell einzuschätzen und eventuell eine Strategie vorzubereiten.

IT L'impatto di AirbnB sul turismo

Nonostante l'enorme espansione del portale per la condivisione di alloggi AirbnB, solo pochi studi si sono occupati del suo impatto a fini normativi. Uno studio sugli effetti di AirbnB su turismo ed economia in Australia occidentale aiuta a fare chiarezza. Questo studio potrebbe aiutare anche operatori turistici e politici altoatesini a stimare l'impatto di AirbnB e a definire come rispondere sul piano legislativo.



Innovation und Kooperation in Südtiroler Unternehmensnetzwerken

Wie innovativ sind die Südtiroler Firmen? Welche Bedeutung messen sie der Zusammenarbeit mit anderen Unternehmen bei? Diesen Fragen gingen die Forscher von Eurac Research in einer Studie auf den Grund, für die sie rund 100 große, mittlere und kleine Betriebe und ihre Netzwerke analysierten. Die wichtigsten Ergebnisse: Ein Großteil der untersuchten Unternehmen ist innovationsbereit, aber nur wenige gehen Risiken ein und ergreifen neue Initiativen auf dem Markt. Bei der Umsetzung von Innovationen spielt die Zusammenarbeit mit anderen wirtschaftlichen Akteuren, aber vor allem auch mit den Institutionen eine zentrale Rolle. Außerdem untersuchten die Forscher, wie Südtirol in Bezug auf Innovation und Wettbewerbsfähigkeit im Vergleich mit ähnlich strukturierten europäischen Regionen abschneidet.

Die Studie bestätigte, dass Innovation in vielen Fällen einen positiven Einfluss auf den wirtschaftlichen Erfolg hat. Der Begriff Innovation wurde dabei bewusst weit gefasst, um nicht nur technologische Aspekte einzubeziehen. Zentrale Fragen der Untersuchung waren: Wie kann durch Kooperation Innovation entstehen, welche Vorteile bietet ein regionales Netzwerk? Mit welchen Unternehmen oder Institutionen arbeiten die Betriebe zu welchem Zweck und wie intensiv zusammen? Haben sie mehr Kontakte in Südtirol oder außerhalb der Provinz? Dabei zeigte sich, dass die Betriebe auch Wissen von außerhalb in die Region holen und sektorübergreifend zusammenarbeiten. Außerdem trat deutlich zutage, wie wichtig für die Unternehmen bei Innovationskooperationen der Faktor „Vertrauen“ ist: Institutionellen Vermittlern zwischen den Akteuren – etwa den Landesämtern oder IDM – kommt deshalb eine wichtige Rolle zu.

Im Vergleich zu Oberbayern, Tirol, dem Trentino und dem Elsass ist das Innovationspotenzial der Südtiroler Unternehmen überdurchschnittlich groß, obwohl in der Region weniger in Innovation investiert wird. Die Forscher erarbeiten nun Empfehlungen, wie die öffentliche Hand Innovation als zentrales Element der Wettbewerbsfähigkeit fördern kann.

EN Innovation and cooperation in South Tyrolean corporate networks

How innovative are South Tyrolean companies? How much do they cooperate? In a study of about one hundred companies, researchers found that while there are many innovative companies, only some have an appetite for risk and new initiatives. Currently, researchers are developing recommendations targeted to public administrators to encourage innovation and cooperation, important factors in competitiveness.

IT Innovazione e cooperazione nelle reti aziendali altoatesine

Quanto sono innovative le imprese altoatesine? Quanto cooperano tra di loro? Per scoprirlo i ricercatori hanno analizzato circa cento imprese. Ne emerge che le aziende innovative sono parecchie, ma solo alcune hanno anche una buona propensione al rischio e spirito di iniziativa. Al momento i ricercatori stanno elaborando delle raccomandazioni rivolte all'amministrazione pubblica per favorire innovazione e cooperazione, fattori importanti per la competitività.

Meno camion nelle Alpi

In Europa, circa il 75 per cento delle merci viaggia su camion, a tutto svantaggio dell'ambiente. Un nuovo studio europeo che vede coinvolti i ricercatori di Eurac Research insieme ad altri 13 partner tra centri di ricerca, operatori e istituzioni vuole smuovere le acque. Nei prossimi tre anni geografi, economisti ed esperti di pianificazione dei trasporti definiranno delle linee guida per rendere il trasporto intermodale nelle Alpi più concorrenziale.

Le tariffe degli spedizionieri lasciano pochi dubbi: al momento, trasportare una tonnellata di merci su gomma risulta in molti casi più conveniente che non affidarsi a una combinazione treno-camion. Peccato che i costi sociali e ambientali, che comprendono la nostra salute, non siano inclusi nel calcolo. “Se gas serra, inquinanti locali, rumore, congestione stradale e incidenti venissero quantificati, il quadro sarebbe diverso”, spiega Federico Cavallaro, studioso di economia dei trasporti. Alla luce di queste premesse, nella cornice della ricerca “AlpInnoCT - Innovazione alpina per il trasporto combinato”, finanziata dall'Unione europea attraverso il programma Alpine Space, gli esperti di Eurac Research e i colleghi mapperanno le misure e le iniziative in atto nei vari paesi per rendere più competitivo il trasporto combinato. Per esempio, la deroga al peso massimo consentita a un mezzo pesante se la maggior parte del trasporto avviene su rotaia. Oppure la norma in vigore in Svizzera che prevede incentivi economici per gli autotrasportatori che affidano i loro carichi a un treno merci. In seguito, i ricercatori valuteranno il quadro d'insieme ed elaboreranno delle raccomandazioni che verranno testate in due casi studio reali: lungo il corridoio del Brennero e l'asse Trieste-Salisburgo. “Il dialogo tra operatori, ministeri ed enti locali è di per sé un obiettivo fondamentale dello studio”, afferma Cavallaro. “Senza un intervento attivo della politica, le conclusioni dei ricercatori rimangono teoria”.

EN Fewer trucks in transit in the Alps

About 75 percent of goods in Europe are transported by road freight transport, with nefarious effects on the environment. AlpInnoCT, a new European study involving researchers from Eurac Research along with 13 other partners (including research centres, operators and institutions) wants to improve the situation. In two case studies in the Brenner Corridor and the Salzburg-Trieste axis, geographers, economists and transport planning experts will define the guidelines to optimise intermodal transport in the Alps.

DE Weniger Lastenwagenverkehr über die Alpen

In Europa werden circa 75 Prozent der Güter über die Straße transportiert, zum großen Schaden der Umwelt. Die Kombination mit der Schiene ist nicht wettbewerbsfähig. Im Rahmen der europäischen Studie AlpInnoCT werden in den nächsten drei Jahren Geografen, Wirtschaftswissenschaftler und Experten in Transportplanung Leitlinien definieren, um den intermodalen Verkehr zu fördern. Geplante Fallstudien: der Brennerkorridor und die Achse Triest-Salzburg.



Energy Retrofits for Shopping Malls

CommONEnergy is a project designed to significantly decrease the energy consumption and environmental impact of shopping malls, while increasing the comfort of their users. A 23-partner international team led by Eurac Research used innovative technologies and solution sets as part of a systemic retrofitting process designed to exploit the energy-saving potential of these buildings.

The CommONEnergy project seeks to transform shopping malls into models of energy-efficient architecture and systems. Twenty-three partners from industry, research, and academia developed a systemic retrofitting approach for shopping malls made up of innovative technologies and solution sets, as well as methods and tools to support the implementation of these solutions, and to assess the environmental and social impact in the asset life cycle. The soundness of the project's approach and solutions was tested and confirmed in three demonstration cases in Italy, Norway, and Spain, as well as theoretically assessed in further eight reference buildings chosen in the EU building stock.

In all, more than 25 innovative technologies were developed and installed in the project demo cases:

DE Energetische Sanierung von Einkaufszentren

Das Projekt CommONEnergy will den Energieverbrauch und damit die Umweltschädlichkeit von Einkaufszentren nachhaltig reduzieren. Unter der Leitung von Eurac Research nutzten 23 Partner eines internationalen Teams innovative Technologien, um Energie einzusparen. An drei Fallstudien in Italien, Norwegen und Spanien wurden insgesamt 25 technologische Lösungen entwickelt und getestet.

IT Retrofit energetico per i centri commerciali

Lo scopo di CommONEnergy è quello di ridurre significativamente il consumo di energia e l'impatto ambientale dei centri commerciali. 23 partner internazionali guidati da Eurac Research hanno sviluppato tecnologie e soluzioni innovative che consentono di utilizzare il potenziale di risparmio energetico di questi edifici. In tre casi studio in Italia, Norvegia e Spagna sono state sviluppate, installate e convalidate più di 25 tecnologie innovative.

A Sampling of CommONEnergy Technologies, Solutions, and Tools



Modular Multifunctional Climate Adaptive Façade System.

A highly flexible façade system was developed to maximise modularity and adaptability both in the design and operational stages.



Ventilative Cooling Technologies and Strategies

Natural or mechanical ventilation strategies to cool indoor spaces were implemented to reduce the energy consumption of cooling systems. Thermal comfort in transitional spaces was maintained by adapting existing theoretical models.



Interactions Among Shopping Malls and Energy Grids

By reducing their energy needs and by using renewable sources and storage systems, future shopping centres can profitably interact with local smart grids and electrical transport.



Continuous Commissioning Platform

Key Performance Indicators were implemented in a user-friendly web-based interface to enable an overall performance control of the comfort, energy fluxes and economics of a shopping centre.

The project will be wrapped up in a final public conference in Brussels in September 2017. Actual performance assessment of retrofitted demo-cases and train-the-practitioner programmes are ongoing.

Bolzano smart city: comincia la fase operativa

Per SINFONIA, il progetto sostenuto dalla Ue che trasforma alcune aree di Bolzano e Innsbruck in distretti smart, è arrivato il momento di aprire i cantieri. Lo scorso inverno sono partiti i lavori per l'efficientamento energetico in alcuni dei nove edifici coinvolti nel capoluogo altoatesino. I ricercatori stanno inoltre attivando la rete elettrica e di informazione composta da 150 smart point e anche il teleriscaldamento avanza.

Dopo anni di intensa progettazione, sono comparse le prime impalcature e così, nel 2017, la trasformazione di alcune porzioni di Bolzano in distretti smart entra nel vivo. I lavori di ristrutturazione sono cominciati in alcuni palazzi che ospitano alloggi di proprietà dell'Istituto per l'edilizia sociale della Provincia e proseguiranno nel corso dell'anno anche negli edifici del Comune.

Gli interventi variano a seconda delle esigenze: dalla installazione di impianti solari termici e fotovoltaici alla realizzazione di impianti di riscaldamento con sonde geotermiche o caldaie a pallet, passando per il cambio dei serramenti e il rifacimento degli involucri. In comune ci sono gli obiettivi: migliorare il comfort, usare più rinnovabili e – soprattutto – consumare meno. Secondo i piani dei ricercatori, che anche in futuro monitoreranno con costanza i valori di 147 appartamenti campione, gli edifici rinnovati passeranno da una classe Casaclima G a una A.

Entro la fine dell'anno verranno messi in funzione anche i primi totem che fungeranno, tra le altre cose, da punto di ricarica per bici, auto elettriche e cellulari, Sos point, erogatori di acqua e wifi.

Al progetto SINFONIA collaborano 25 partner. Innsbruck e Bolzano sono i casi studio pilota; cinque città europee, tra cui Siviglia, in Spagna, e Borås, in Svezia, si sono già candidate a seguirne l'esempio.




EN Bolzano Smarcity: the Operational Phase Begins

Construction work began in 2016 for SINFONIA, the EU-supported project that intends to transform some areas of Bolzano/Bozen and Innsbruck into smart energy districts. Work began on the energy efficiency interventions in some of the nine buildings in Bolzano/Bozen. Furthermore, researchers are activating the network of 150 "smart points" and expanding district heating. Innsbruck and Bolzano/Bozen are the pilot case studies, with five other European cities ready to follow suit.

DE Smart City Bozen: Die Umsetzung hat begonnen

Beim EU-Projekt SINFONIA, das Teile Bozens und Innsbrucks in "smarte" Stadtviertel verwandelt, haben nach langer Planung die Arbeiten begonnen. Neun Gebäude werden in Bozen derzeit saniert, um sie energieeffizient zu machen, außerdem sind die Forscher dabei, die 150 Smart Points zu installieren. Auch das Fernwärmenetz kommt voran. Fünf europäische Städte wollen dem Beispiel Innsbrucks und Bozens folgen.

Gli interventi previsti a Bolzano nella cornice del progetto SINFONIA

	Risanamento di edifici	9 edifici 37.000 metri quadrati 345 alloggi 40-50% risparmio energetico stimato 20% incremento stimato di energie rinnovabili
	Rete elettrica	150 smart point (con e senza servizi integrati) 6 servizi offerti Circa 50.000 persone coinvolte
	Teleriscaldamento	60% riduzione emissioni di azoto 5% riduzione dispersioni sulla rete

Energieverbrauch historischer Gebäude: ein Atlas gibt Orientierung

Bei historischen Gebäuden wird im Allgemeinen angenommen, dass sie viel Energie verbrauchen, doch weder gibt es gesicherte Informationen darüber, wie hoch der Verbrauch für die verschiedenen Gebäudetypen tatsächlich ist, noch weiß man genau, was ihn im Einzelnen beeinflusst. Nur wer all diese Aspekte kennt, kann aber optimale Lösungen zur energetischen Sanierung entwickeln und zuverlässig voraussagen, wie sehr sie Energieeffizienz und Wohnqualität verbessern. Eurac Research hat deshalb mit einer systematischen Bestandsaufnahme begonnen. Ziel ist ein Gebäudeatlas, der detaillierte Informationen zu Bauweisen, Materialien und Energiebilanz vereint und Beispiele gelungener Sanierungen vorstellt.

Ihr Hauptaugenmerk richten die Forscher dabei auf Bauernhöfe und nicht freistehende städtische Wohnhäuser wie Laubenhäuser, aber auch ländliche Ansitze, Hotels und Gasthäuser oder Schulen werden erfasst. Dabei geht es nicht nur darum, Schwachstellen zu identifizieren: In historischen Gebäuden finden sich oft auch intelligente Lösungen, um Energie einzusparen. „Energie war auch früher schon kostbar“, erklärt Dagmar Exner, Energieexpertin von Eurac Research. „Laubenhäuser etwa sind so kompakt gebaut, dass ihre Außenfläche minimal ist. Auch die Nutzung wurde angepasst: Beheizt wurde nur der Wohnraum.“

Gemeinsam mit ihrer Forscherkollegin Francesca Roberti arbeitet Exner an einer Datenbank, die einheitlich aufbereitete Informationen zu allen Aspekten enthält, die für Architekten, Eigentümer oder Denkmalschützer im Falle einer energetischen Sanierung interessant sind: Bauweise, Materialien, Konstruktionsdetails, Energiebilanz. Außerdem sollen Beispiele erfolgreicher Sanierungen präsentiert werden. „Indem wir zeigen, dass man Energiebilanz und Wohnkomfort optimieren kann und gleichzeitig das historische Erscheinungsbild und die Atmosphäre erhalten, möchten wir Eigentümer ermuntern, über Sanierung nachzudenken statt abzureißen“, erklärt Exner. Den Energieverbrauch verschiedener historischer Gebäudetypen genauer beziffern zu können ist aber auch für Gemeinden von großer Bedeutung, um das Einsparpotenzial durch Sanierungen zu bewerten.

EN Energy Consumption of Historic Buildings: An Orientation 'Atlas'

It is generally supposed that historic buildings consume large amounts of energy; however, exactly how much energy and what it depends on is still unknown. With this knowledge optimal solutions for energy rehabilitation can be developed and predictions be made as to improving energy efficiency and comfort. Eurac Research is working on an atlas of historical buildings that collects information on construction methods, materials and energy balance, and presents examples of well-managed renovation.

IT Consumo energetico degli edifici storici: un atlante aiuta a orientarsi

Si suppone che gli edifici storici consumino molta energia, non si sa però esattamente quanta sia e da cosa dipenda. Solo conoscendo dettagliatamente queste informazioni è possibile sviluppare soluzioni ottimali per il loro risanamento energetico e prevedere di quanto si possano migliorare l'efficienza energetica e il comfort abitativo. Eurac Research sta raccogliendo all'interno di un atlante informazioni su metodi di costruzione, sui materiali e sui consumi energetici degli edifici storici, includendo anche esempi di risanamento energetico ben riuscito.

Reducing Energy Loss in District Heating and Cooling

Why heat domestic hot water to 90°C in a centralised plant when it could be distributed at low temperatures and heated directly in a building? Why not use waste heat from industrial sources and refrigeration systems to contribute energy to the network along the water's path? The Eurac Research project FLEXYNETS addresses these and other questions with a series of energy-saving innovations for District Heating and Cooling (DHC) networks.

FLEXYNETS is a H2020 European Project coordinated by Eurac Research that focuses on a new generation of intelligent District Heating and Cooling (DHC) systems. Traditionally, DHC networks distribute energy from centralised generation plants to a number of remote customers. As a result, current DHC systems are affected by heat losses along that network. FLEXYNETS is the first project to explore the potential of integrating the different energy sources available along the water's path. Running from June 2014 and June 2018, the project's consortium of six research and industry partners from Italy, Spain, Germany and Denmark will develop, demonstrate and deploy a new generation of DHC networks that can reduce energy transportation losses by working at 'neutral' (15-20°C) temperature levels. The new system uses reversible heat pumps on the demand side to exchange heat with the DHC network, providing cooling and heating for a range of building sizes.

The resulting energy savings translate into tangible CO₂ reduction for the environment and lower energy bills for users. The FLEXYNETS concept also reduces investment costs, as inexpensive plastic pipes can be used to distribute the carrier fluid; moreover, the integration of multiple heat sources and heat sinks from all over the network path increases the profitability per unit length of pipe installed.

In the summer of 2016, a new DHC test infrastructure was set up in Bolzano/Bozen's Technology Park. The 'Energy Exchange Lab' can reproduce a wide range of DHC systems; interact with gas, and electricity grids; and simulate winter or summer conditions, allowing scientists to test the technologies on a small scale before integrating them into an existing DHC network.

DE Reduzierter Energieverlust in Fernwärme- und Fernkühlungsnetzen

Im Rahmen des europäischen Projekts FLEXYNETS arbeiten Forscher von Eurac Research an der Fernwärme und Fernkühlung von morgen. Ein zentrales Element: Indem bei der Verteilung mit niedrigen Temperaturen gearbeitet wird, reduziert sich der Wärmeverlust in den Rohren drastisch. Die damit erzielte Energieersparnis bedeutet geringeren CO₂-Ausstoß und geringere Kosten für die Verbraucher. Um die neuen Technologien zu testen, schuf Eurac Research im Sommer 2016 in Bozen ein „Energy Exchange Lab“.

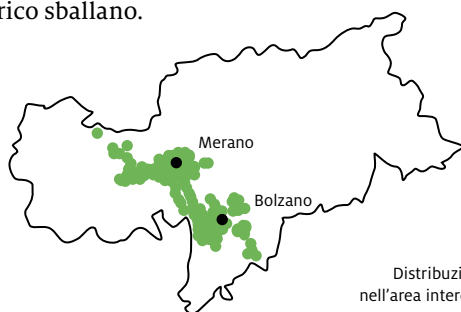
IT Ridurre la perdita di energia nel teleriscaldamento e teleraffrescamento

Il progetto FLEXYNETS sviluppa una nuova generazione di reti di teleriscaldamento e teleraffrescamento che riduce la dispersione di calore utilizzando acqua a bassa temperatura. Il risparmio energetico che ne deriva si traduce in una consistente riduzione di CO₂ per l'ambiente e nella riduzione delle bollette per gli utenti. Nell'estate 2016, Eurac Research ha installato a Bolzano un Energy Exchange Lab per testare le tecnologie su piccola scala prima di integrarle in una rete già esistente.

Rete elettrica: uno strumento per predire la produzione da fotovoltaico

I circa 2000 impianti fotovoltaici installati nell'area di Bolzano e Merano producono una quantità di energia elettrica che varia a seconda del meteo e delle condizioni del singolo impianto. Stimare in modo affidabile a quanto ammonti aiuta a organizzare meglio la rete di distribuzione. I ricercatori di Eurac Research hanno svolto uno studio per fornire al gestore locale una panoramica del potenziale di produzione in tempo quasi reale.

Ogni giorno, i gestori locali della rete elettrica comunicano a Terna, il gestore nazionale, quanta energia prevedono di prelevare l'indomani. In passato, formulavano queste richieste sulla base dei dati storici che subivano lievi variazioni perché tutte le fonti di produzione erano centralizzate e a gettito controllato, per esempio le centrali termoelettriche. Oggi, le fonti rinnovabili distribuite e non programmabili rendono le previsioni più articolate. Tra Merano e Bolzano sono installati circa 70 megawatt di potenza che soddisfano in media il sette-otto per cento del consumo annuo. Ma se una giornata nuvolosa o un guasto alterano la produzione, le ipotesi basate sullo storico sballano.



Distribuzione degli impianti nell'area interessata dallo studio

“Il nostro modello fornisce una previsione accurata dell'energia che verrà prodotta nelle prossime 24-48 ore e ogni 15 minuti dà una stima della produzione corrente”, annuncia David Moser, responsabile dello studio. “Il vantaggio per il gestore è duplice: è più puntuale nelle comunicazioni alla rete nazionale e in caso di problemi, per esempio un sovraccarico, può intervenire in modo tempestivo”. Rispetto ai sistemi di previsione più elementari, lo strumento migliora l'affidabilità fino al 40 per cento. “Abbiamo sfruttato il principio delle reti neurali. Il nostro software ‘impara’ a mano a mano che elabora nuovi dati e diventa più accurato”, spiega Moser. Gli algoritmi processano dati storici, previsioni meteo ottenute da dati satellitari e le specifiche di tutti gli impianti. Il modello, realizzato in collaborazione con l'Università di Tor Vergata e IDEAM Srl, è stato segnalato tra i tre studi più esemplari nel loro genere dalla Piattaforma tecnologica europea per il fotovoltaico (EU PV ETIP). Il progetto si è svolto in collaborazione con il Gestore di rete di distribuzione operante nella zona.

EN A Tool for Predicting Photovoltaic Energy Production

The approximately 2,000 photovoltaic systems of the area of Bolzano/Bozen and Merano/Meran produce a quantity of electricity that varies depending on the weather and individual plant conditions. Reliable estimates of these fluxuations helps to better organise the distribution network. Researchers at Eurac Research conducted a survey to furnish the local energy provider with an overview of the production potential in near real time.

DE Elektrizitätsversorgung: ein Instrument für zuverlässige Solarstromprognosen

2000 Photovoltaik-Anlagen sind im Gebiet von Bozen und Meran installiert. Wieviel Energie sie produzieren, hängt vom Wetter ebenso ab wie von den einzelnen Anlagen. Es zuverlässig vorauszusagen ist nötig, um die Verteilung über das Stromnetz zu optimieren. Die Forscher von Eurac Research haben ein Verfahren entwickelt, das den Netzbetreibern diese wichtige Information fast in Echtzeit liefert.

Facts

Personnel Personal Personale

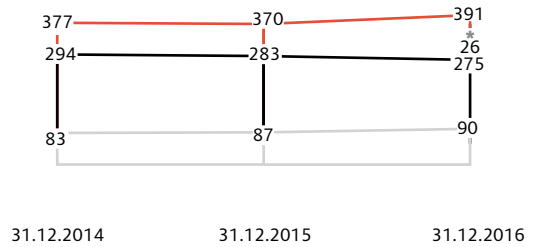
Personnel . Personalstand . Personale

Total (Research Support + Research)
Gesamt (Research Support + Forschung)
Totale (Research Support + Ricerca)

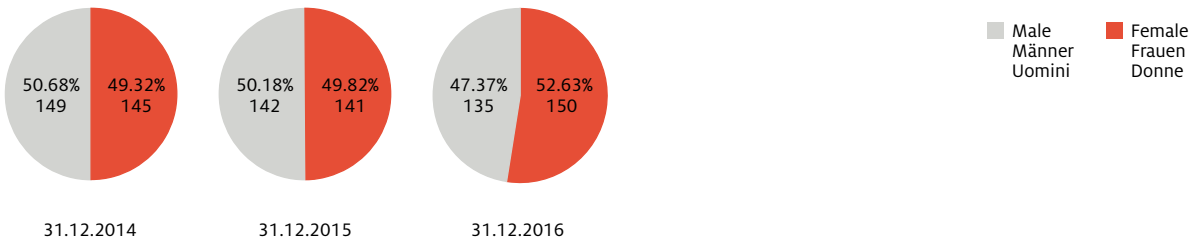
*
PhD Students (Grants Programme)
Doktoranden
Dottorandi

Research
Forschung
Ricerca

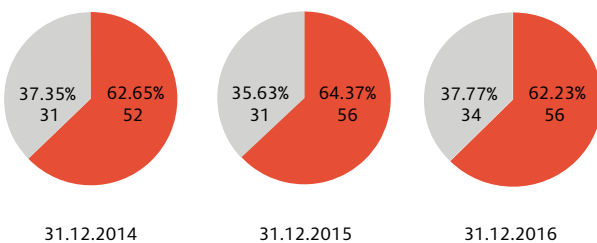
Research Support



Personnel by Gender . Personalstand nach Geschlecht . Personale per sesso Research . Forschung . Ricerca



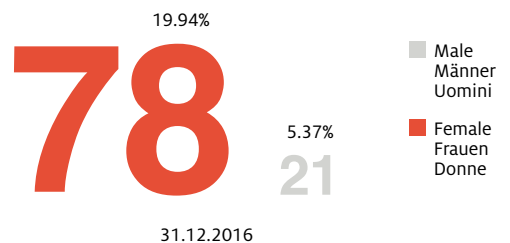
Personnel by Gender . Personalstand nach Geschlecht . Personale per sesso Research Support



Employees with Part-Time Contracts (permanent and contract employee)

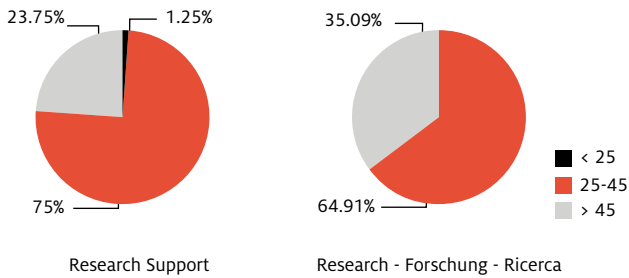
Teilzeitangestellte
(befristete und unbefristete Verträge)

Dipendenti impiegati a part time
(con contratto a tempo determinato e indeterminato)



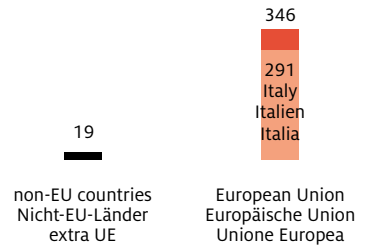
Personnel by Age
Personal nach Altersgruppen
Personale per fasce di età

(31.12.2016)



Personnel by Country of Origin
Personal nach Herkunft
Personale per provenienza

(31.12.2016)



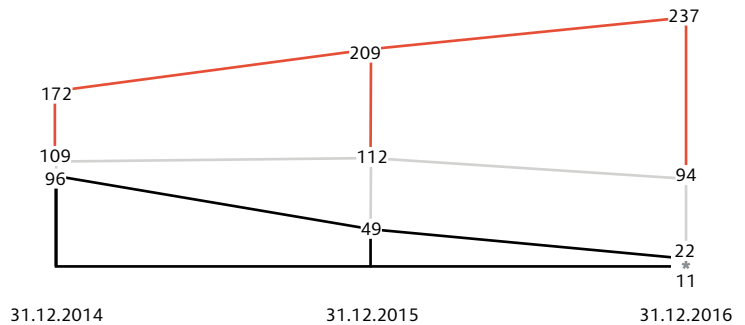
Contracts (in numbers) . Verträge (in Zahlen) . Contratti (in numeri)

Permanent Employees
 Unbefristet
 A tempo indeterminato

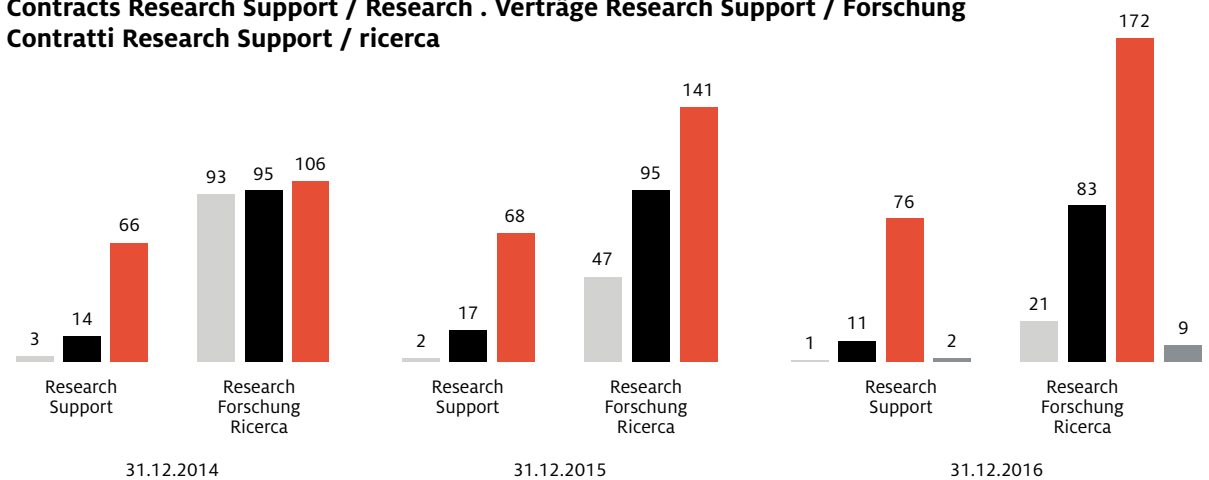
Contract Employees
 Befristet
 Assunzioni a tempo determinato

Continuous and Coordinated Collaboration Contract (CoCoCo)
 Koordinierte und fortwährende Mitarbeit (CoCoCo)
 Collaborazione coordinate e continuative (CoCoCo)

* Apprenticeship Contracts
 Lehrvertrag
 Contratto di apprendistato



Contracts Research Support / Research . Verträge Research Support / Forschung
Contratti Research Support / ricerca



Continuous and Coordinated Collaboration Contract (CoCoCo)
 Koordinierte und fortwährende Mitarbeit (CoCoCo)
 Collaborazione coordinate e continuative (CoCoCo)

Contract Employees
 Befristet
 Assunzioni a tempo determinato

Permanent Employees
 Unbefristet
 A tempo indeterminato

Apprenticeship Contracts
 Lehrvertrag
 Contratto di apprendistato

Employees Who Telework
Mitarbeiter, die Telearbeit machen
Dipendenti che fanno telelavoro

Total . Gesamt . Totale

10.9 %

31.12.2016

Average Age of Employees
Durchschnittsalter der Mitarbeiter
Età media del personale

Total . Gesamt . Totale

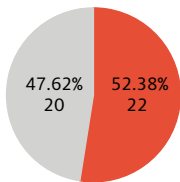
39.3
37.5

■ Male
Männer
Uomini

■ Female
Frauen
Donne

31.12.2016

Current PhD Students
Aktuelle PhD-Studenten
Studenti PhD



31.12.2016

■ Male
Männer
Uomini

■ Female
Frauen
Donne

Number of Contract Terminations
(contract employee and permanent employee)

Zahl der beendeten Arbeitsverhältnisse
(mit befristetem und unbefristetem Vertrag)

Numero di contratti conclusi
(con contratto a tempo determinato e indeterminato)

16

31.12.2016

Finance Finanzen Finanze

2016

Basic Financing from the Autonomous Province
of Bozen/Bolzano

Grundfinanzierung durch die Autonome Provinz
Bozen-Südtirol

Finanziamento della Provincia
autonoma di Bolzano

59%

19,399,081 Euro

Third Party Funding
Drittmittel
Fondi terzi

41%

13,614,646 Euro

Membership Dues/Mitgliedsbeiträge/
Contributi dei soci

893,482 Euro

Projects/Projektaufträge/Progetti
(Total budget administrated by Eurac Research/
Von Eurac Research verwaltetes Gesamtbudget/
Budget totale amministrato da Eurac Research)

11,856,389 Euro
(EU share/davon EU/di cui dall'UE) 8,647,761 Euro

Courses/Kurse/Corsi

261,199 Euro

Meeting Management

275,836 Euro

Sponsorships/Sponsoring/Sponsorizzazioni

84,500 Euro

Other Revenues/Andere Einnahmen/Altri

243,240 Euro

Total
Gesamtsumme
Totale

100%

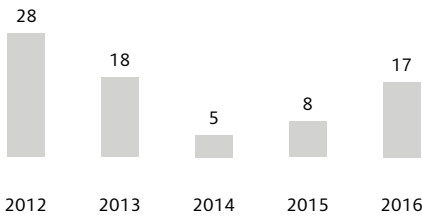
33,013,727 Euro

Participation in EU Research Projects

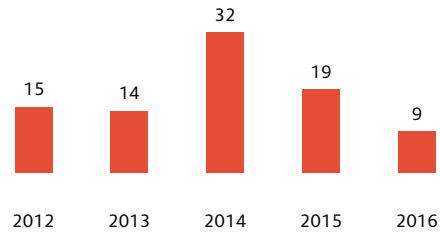
Eurac Research stands out as having achieved the correct balance between projects dealing with local issues, and those of international impact. International and European partnerships in research projects is part of Eurac Research's mission and is supported by the Research Development Office. Since 2010, Eurac Research has worked on 112 projects that were financed or cofinanced through EU programmes and carried out in cooperation with partners

from various EU countries. At the time of writing (April 2017), Eurac Research was implementing 43 EU projects. In 2016, Eurac Research initiated **17 EU projects** as a partner or as the lead partner (12 as partner and 5 as Lead partner). The new **EU cofinancing for Eurac Research has almost doubled compared to 2015 and came to €3,760,902**. The high quality of Eurac Research's proposals is confirmed by a success rate of 31.25% for projects we presented as Lead Partner.

EU Projects Initiated During the Year

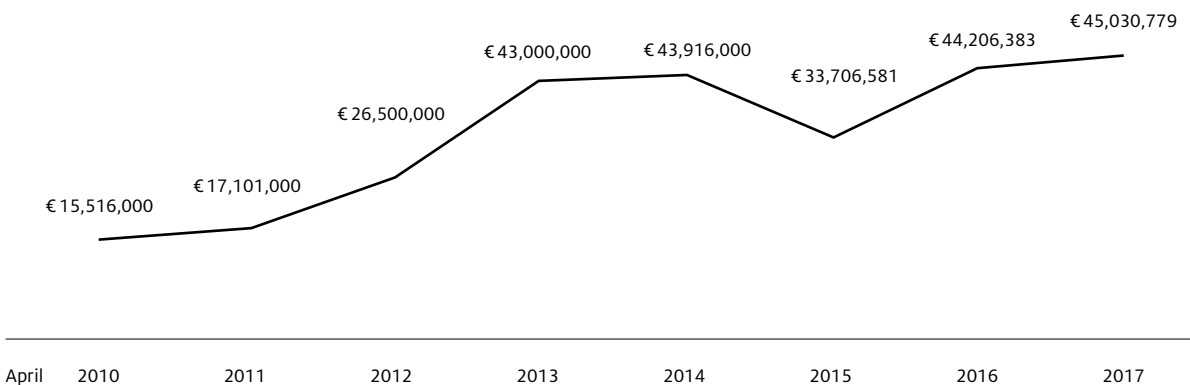


EU Projects Completed During the Year



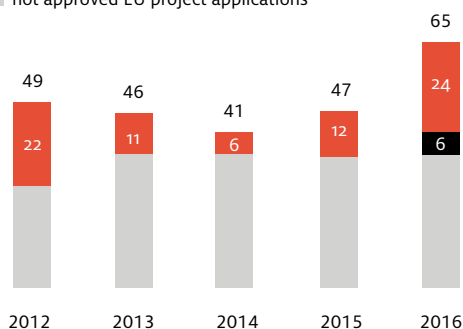
Overall Project Budget

Total Budget Administrated by Eurac Research



EU Project Applications as Project Partner or Lead Partner vs Applications Accepted:

- accepted EU project applications
- EU project applications under evaluation
- not approved EU project applications



EU Projects Funded or Co-funded by EU Programmes (Ongoing Projects in March 2017):

11

Horizon 2020

3

COST Action

5

7th Framework Programme for Research and Technological Innovation (FP7)

7

European Territorial Cooperation Alpine Space

4

European Territorial Cooperation Interreg Italy-Austria

3

Erasmus +

5

European Fund for Regional Development (ERDF)

5

Other programmes (AAL, Interreg Central Europe...)

SIX APPROVED PROJECTS

RECENTLY STARTED:

RESTORE

REthinking Sustainability TOwards a Regenerative Economy
 Financed by: COST Action
 Project duration: 48 months
 Countries participating: 33
 Role of Eurac Research: Grant Holder
 Total project budget: appr. 660.000€

enetCollect

European Network for Combining Language Learning with Crowdsourcing Techniques
 Financed by: COST Action
 Project duration: 48 months
 Countries participating: 29
 Role of Eurac Research: Grant Holder and Chair of Action
 Total project budget: appr. 550.000€

EXCEED

European Energy Efficient building district Database
 Project Duration: 30
 Financed by: Horizon 2020
 Partners: 5
 Role of Eurac Research: Lead Partner
 Total project budget: 749,634€

Pluralps

Innovative services for successful migration in alpine rural areas
 Project Duration: 36 months
 Financed by: Interreg Alpine Space
 Partners: 9
 Role of Eurac Research: Partner
 Total project budget: 2.699.979€

AlpES

Alpine Ecosystem Services – Mapping, Maintenance and Management
 Project Duration: 36
 Financed by: Interreg Alpine Space
 Partners: 10
 Role of Eurac Research: Lead Partner
 Total project budget: 2.265.000€

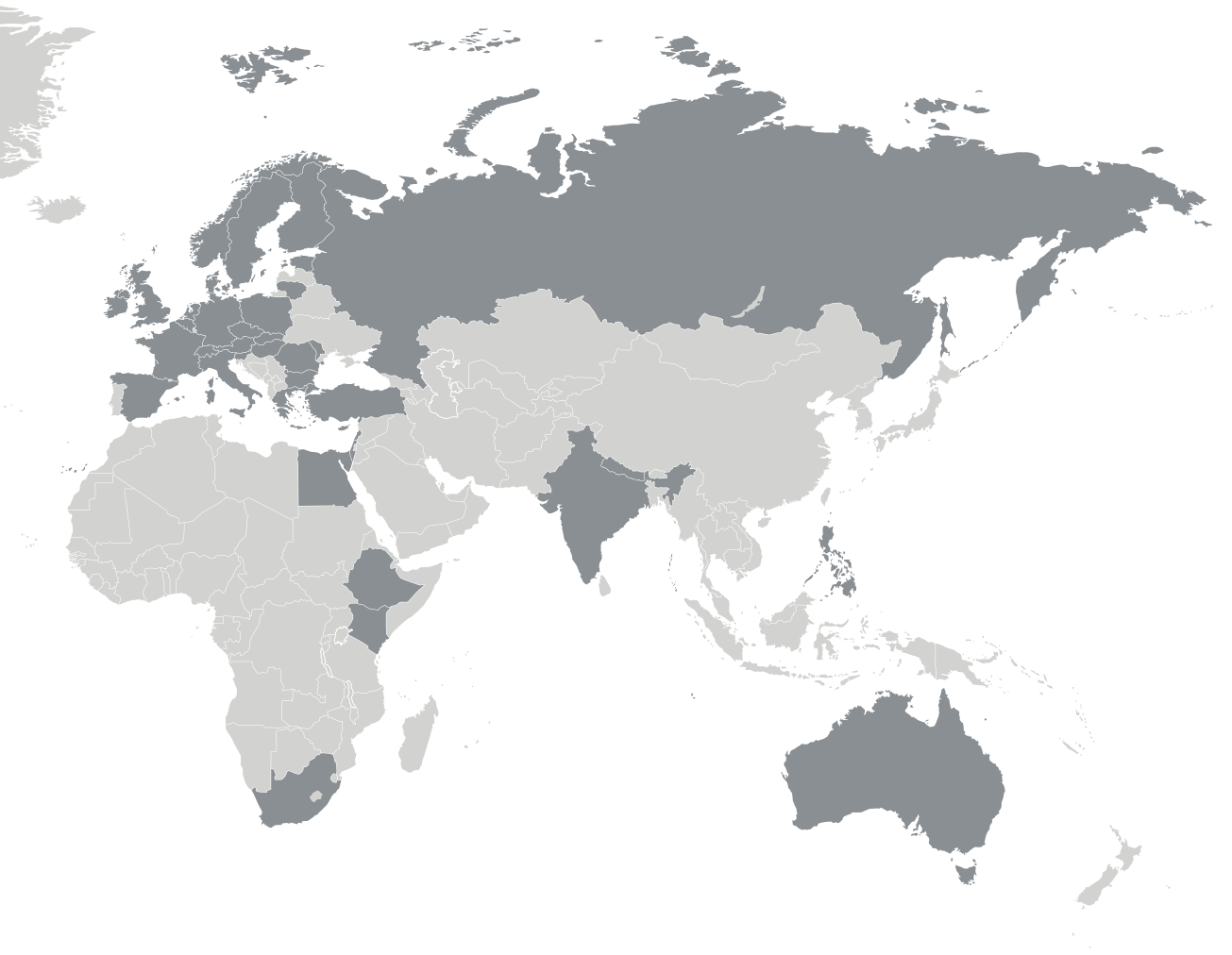
ALFFA

Analisi globale e multiscala dei fattori che influenzano la fauna ittica delle zone centro-alpine
 Project Duration: 29 months
 Financed by: Interreg Italy-Austria
 Partners: 3
 Role of Eurac Research: Lead Partner
 Total project budget: 767.013€

Partners



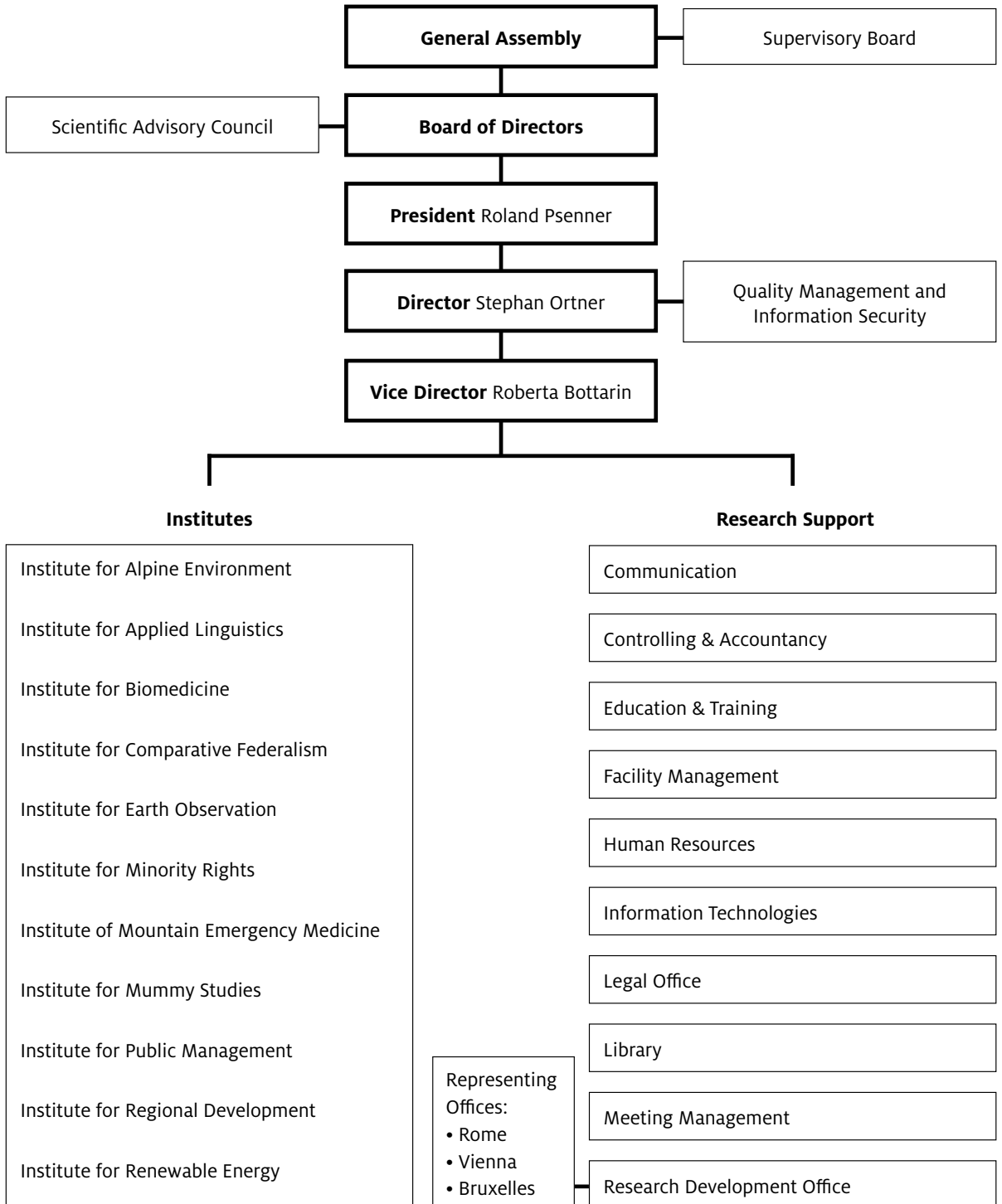
AUSTRALIA Perth **AUSTRIA** Alberschwende, Aldrans, Dornbirn, Eisenstadt, Ginzling, Gleisdorf, Graz, Innsbruck, Klagenfurt, Lienz, Linz, Mieming, Salzburg, Wien **BELGIUM** Ans, Antwerpen, Brussels, Liege, Louvain-la-Neuve, Oudenaarde, Tervuren **BOLIVIA** La Paz, Sopocachi **BRAZIL** Alexio Manaus **BULGARIA** Sofia **CANADA** Kingston, Montreal, Ottawa **CHILE** Santiago, Talca **CYPRUS** Lefkosia, Paphos **CZECH REPUBLIC** Prague **DENMARK** Aalborg, Kopenhagen, Skørping **EGYPT** Cairo, Giza **ESTONIA** Tartu **ETHIOPIA** Addis Ababa **FINLAND** Joensuu, Oulu **FRANCE** Antibes, Brest, Grenoble, La Rochelle, Le Chatelard, Lyon, Nizza, Paris, Orléans, Saint-Martin-d'Hères, Saint-Rémy-lès-Chevreuse, Strasbourg, Toulouse, Villeurbanne **GERMANY** Bayreuth, Berlin, Binsdorf, Binswangen, Bonn, Chemnitz, Darmstadt, Eichenau, Eichstädt, Flensburg, Frankfurt, Freiburg, Göttingen, Halle, Heidelberg, Jena, Köln, Leipzig, Lübeck, Magdeburg, Mannheim, München, Paderborn, Potsdam, Regensburg, Rosenheim, Schopfheim, Speyer, Stuttgart, Troisdorf, Tübingen, Übersee am Chiemsee, Weinstadt **GREECE** Anavysos Attiki, Athens, Iraklio **HUNGARY** Bistrita, Szeged, Szombathely **INDIA** Dharamsala **IRELAND** Dublin, Tralee **ISRAEL** Haifa, Jerusalem **ITALY** Aosta, Bari, Belluno, Bologna, Bolzano, Brescia, Bressanone, Bronzolo, Brunico, Camerino, Catania, Cortina, Courmayeur, Fiesole, Firenze, Foggia, Gambettola, Genova, Lana, Lecce, Malles, Marghera, Merano, Milano, Modena, Moncalieri, Ortisei,



Padova, Parma, Pavia, Pisa, Roma, Rimini, Saint-Christophe, San Candido, Sassari, Segrate, Stezzano, Silandro, Torino, Trento, Trieste, Turate, Udine, Varmo, Venezia, Verona, Vilpiano, Vipiteno, Zanica **KENIA** Nairobi **LIBANON** Horsh Tabet **LICHTENSTEIN** Schaan **LITHUANIA** Klaipėda, Vilnius **MEXICO** Monterrey **NEPAL** Kathmandu **NETHERLANDS** Amstelveen, Dieren, Eindhoven, Groningen, Roosendaal, Wageningen **NORWAY** Bergen, Lillehammer, Oslo, Tiller, Trondheim **PHILIPPINES** Los Baños **POLAND** Bydgoszcz, Warsaw **REPUBLIC OF MOLDOVA** Chisinau **ROMANIA** Cluj-Napoca **RUSSIA** Moskwa **SLOVAK REPUBLIC** Bratislava, Košice, Zvolen **SLOVENIA** Idrija, Koper, Maribor, Ljubljana **SOUTH AFRICA** Thohoyandou **SPAIN** Alcobendas, Arrasate-Mondragón, Barcelona, Boecillio Valladolid, Donostia-San Sebastian, Jaén, La Vall d'Uixó, Madrid, Merida, Multiva Navarra, Sevilla, Solsona, Valladolid, Zaragoza **SWEDEN** Borås, Linköping, Lund, Stockholm, Täby **SWITZERLAND** Bern, Brig-Glis, Chur, Genf, Kloten, Lugano, Lucerne, Vaduz, Zürich **TURKEY** Aydın, Istanbul, Izmir **UNITED KINGDOM** Aberdeen, Cambridge, Forfar, Glasgow, Kensington, Lancaster, Leeds, Leicester, London, Milton Keynes, Sheffield **USA** Ann Arbor, Camden, Kansas City, La Jolla, Long Beach, Milwaukee, New York, Reston, Standford, Washington.

Organisation

Organigram Organigramm Organigramma



Committees Organe Organi

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Autonome Region Trentino Südtirol /
Regione Autonoma Trentino Alto Adige
Autonome Provinz Bozen - Südtirol /
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Bezirksgemeinschaft Burggrafenamt /
Comunità Comprensoriale Burggraviato
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Gemeinde Bozen / Comune di Bolzano
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Gemeinde Brixen / Comune di Bressanone
Gemeinde Meran / Comune di Merano
Handels-, Industrie-, Handwerks und Landwirtschafts-
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Artigianato e Agricoltura di Bolzano
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Unione Commercio, Turismo, Servizi Alto Adige
Hoteliers- und Gastwirteverband /
Unione Albergatori e Pubblici Esercenti
IDM Südtirol - Alto Adige

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Fondazione Cassa di Risparmio di Bolzano
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Abteilung Innovation,
Forschung und Universität
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Dipartimento di Biologia
ed Evoluzione

Massimo Tagliavini
Libera Università di Bolzano,
Facoltà di Scienze e
Tecnologie
Jill S. Baron
Natural Resource Ecology,
Colorado State University



25

Total Staff

12

Postdocs

4

Visiting Professors
(incoming)

7

University Lecturers
(outgoing)



24

Papers in
Scientific Journals



38

Presentations

7

Papers in Conference
Proceedings



19

Total Projects

17

International Projects

Papers 2016/17 Selection

- Locatelli B., Lavorel S., Sloan S., Tappeiner U., Geneletti D. (2017): Characteristic trajectories of ecosystem services in mountains. *Frontiers in Ecology and the Environment* 15 (3), 150-159. Doi: 10.1002/fee.1470
- Egarter Vigl L., Schirpke U., Tasser E., Tappeiner U. (2016): Linking long-term landscape dynamics to the multiple interactions among ecosystem services in the European Alps. *Landscape Ecology* 31 (9), 1903-1918. Doi: 10.1007/s10980-016-0389-3
- Tasser E., Leitinger G., Tappeiner U. (2017): Climate Change versus Land-Use Change - which affects the landscape more? *Land Use Policy* 60, 60-72. Doi: 10.1016/j.landusepol.2016.10.019
- Egarter Vigl L., Depellegrin D., Pereira P., de Groot R., Tappeiner U. (2017): Mapping the ecosystem service delivery chain: capacity, flow, and demand pertaining to aesthetic experiences in mountain landscapes. *Science of the Total Environment* 574, 422-436. doi: 10.1016/j.scitotenv.2016.08.209
- Zoderer B.M., Tasser E., Erb K., Lupo Stanghellini P.S., Tappeiner U. (2017): Identifying and mapping the tourists' perception of cultural ecosystem services: A case study from an Alpine region. *Land Use Policy* 56, 251-261. Doi: <http://dx.doi.org/10.1016/j.landusepol.2016.05.004>
- Egarter Vigl L., Tasser E., Schirpke U., Tappeiner U. (2017): Using land use/land cover trajectories to uncover ecosystem service patterns across the Alps. *Regional Environmental Change*, 1-14. Doi: 10.1007/s10113-017-1132-6
- Colliander A., Jackson T.J., Bindlish R., Chan S., Das N., Kim S.B., Cosh M. H., Dunbar R.S., Dang L., Pashaian L., Asanuma J., Aida K., Berg A., Rowlandson T., Bosch D., Caldwell T., Caylor K., Goodrich D., al Jassar H., Lopez-Baeza E., Martínez-Fernández J., González-Zamora A., Livingston S., McNairn H., Pacheco A., Moghaddam M., Montzka C., Notarnicola C., Niedrist G., Pellarin T., Prueger J., Pulliainen J., Rautiainen K., Ramos J., Seyfried M., Starks P., Su Z., Zeng Y., van der Velde R., Thibeault M., Dorigo W., Vreugdenhil M., Walker J.P., Wu X., Monerris A., O'Neill P.E., Entekhabi D., Njoku E.G., Yueh S. (2017): Validation of SMAP surface soil moisture products with core validation sites. *Remote Sensing of Environment* 191, 215-231. Doi: 10.1016/j.rse.2017.01.021
- Schirpke U., Timmermann F., Tappeiner U., Tasser E. (2016): Cultural ecosystem services of mountain regions: Modelling the aesthetic value. *Ecological Indicators* 69, 78-90. doi: 10.1016/j.ecolind.2016.04.001
- Niedertscheider M., Tasser E., Patek M., Rüdiger J., Tappeiner U., Erb K-H. (2017): Influence of Land-Use Intensification on Vegetation C-Stocks in an Alpine Valley from 1865 to 2003. *Ecosystems* 1-16. doi: 10.1007/s10021-017-0120-5
- Penna D., Engel M., Bertoldi G., Comiti F. (2017): Towards a tracer-based conceptualization of meltwater dynamics and streamflow response in a glacierized catchment. *Hydrology and Earth System Sciences*, 21, 23-41. Doi: 10.5194/hess-21-23-2017
- Niedrist G., Tasser E., Bertoldi G., Della Chiesa S., Obojes N., Egarter Vigl L., Tappeiner U. (2016): Down to future: Transplanted mountain meadows react with increasing phytomass or shifting species composition. *Flora* 224, 172-182. Doi: <http://dx.doi.org/10.1016/j.flora.2016.07.013>
- Wohlfahrt G., Hammerle A., Niedrist G., Scholz K., Tomelleri E., Zhao P. (2016): On the energy balance closure and net radiation in complex terrain. *Agricultural and Forest Meteorology*, 226-227, 37-49. Doi: 10.1016/j.agrformet.2016.05.012
- Charrier G., Nolf M., Leitinger G., Charra-Vaskou K., Losso A., Tappeiner U., Améglio T., Mayr S. (2017): Monitoring of freezing dynamics in trees: a simple phase shift causes complexity. *Plant Physiology*, Doi:10.1104/pp.16.01815
- Kohler M., Devaux C., Grigulis K., Leitinger G., Lavorel S., Tappeiner U. (2017): Plant functional assemblages as indicators of the resilience of grassland ecosystem service provision. *Ecological Indicators* 73, 118-127. Doi: 10.1016/j.ecolind.2016.09.024
- Greifeneder F., Notarnicola C., Bertoldi G., Niedrist G., Wagner W. (2016): From point to pixel scale: An upscaling approach for in-situ soil moisture measurements. *Vadose Zone Journal* 15 (6), Doi: 10.2136/vzj2015.03.0048

Institute for Applied Linguistics Institut für Angewandte Sprachforschung Istituto di linguistica applicata



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Marcello Soffritti

Scientific Advisory Council
(2013–2016)

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Università degli Studi di
Padova, Dipartimento di Lin-
guistica Teorica e Applicata
Rudolf de Cillia
Universität Wien, Institut
für Sprachwissenschaft
Christian Galinski
INFOTERM, Wien

Ulrich Heid
Universität Hildesheim,
Institut für Informations-
wissenschaften &
Sprachtechnologie
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für Deutsch als Fremdsprache



24

Total Staff

8

Postdocs

4

Visiting Professors
(incoming)

2

University Lecturers
(outgoing)



4

Papers in
Scientific Journals



22

Presentations

23

Papers in Conference
Proceedings



23

Total Projects

6

International Projects

Books

Aalto, E./ Abel, A./ Auger, N./ Gilly, D./ Schnitzer, K./ Kotimäki, A. (2016): *Die Bildungs- und Unterrichtssprache im Kontext von Diversität lehren: Lehr- und Lernmaterialien für die LehrerInnenbildung. / Teaching the language of schooling in the context of diversity: Study materials for teacher development.* Graz, Austria: ECM.

Abel, A./ Glaznieks, A. (2017): *KoKo: Bildungssprache im Vergleich: korpusunterstützte Analyse der Sprachkompetenz bei Lernenden im deutschen Sprachraum – ein Ergebnisbericht.* Bolzano/Bozen.

Papers 2016/17 Selection

Chiocchetti, E./ Zanasi, L./ Ralli, N. (2016): Multilingual Knowledge Management for South Tyrolean Businesses: Practical Suggestions for a Bilingual Region. In: Vecchiato Sara/ Gerolimich, S. (Eds.): *Le plurilinguisme et le monde du travail: Entre besoins, défis et stratégies / Plurilingualism and the Labour Market: Language needs, challenges and strategies.* (Vol. 26). Frankfurt am Main, Germany: Peter Lang, pp. 197–218.

Vettori, C. (2016): The Long Way to Bilingualism: the Peculiar Case of Multilingual South Tyrol. *Internetlexikografie*, 2.3 (Special Issue "Language Learning & Teaching"), pp. 25–33.

Stopfner, M. (2017): Seit heut früh wird zurückgeschrieben – Interdiscursivity and Intertextuality in Political Comics of the Far Right. In: Epstein, M./ Orsitto, F./ Righi, A. (Eds.): *TOT ART: The Visual Arts, Fascism(s) and Mass-Society.* Newcastle, UK: Cambridge Scholars Publishing, pp. 320–349.

Abel, A./ Meyer, C. M. (2016): Nutzerbeteiligung. In: Klosa, A./ Müller-Spitzer, C. (Eds.): *Internetlexikografie.* Ein Kompendium. Berlin/ New York: de Gruyter. pp. 249-290.

Chiocchetti, E./ Ralli, N./ Stanizzi, I. (2017): From DIY translations to official standardisation and back again? 50 years of experience with Italian and German legal terminology work in South Tyrol. In: Faini, P. (Ed.): *Terms and Terminology in the European Context.* Cambridge: Cambridge Scholars, pp. 254-270.

Engel, D./ Niederfriniger, I. (2016): Zum Umgang mit (migrationsbedingter) Vielfalt in Südtirol – eine

mehrsprachige Region entwickelt ihr Profil. In: Carvill Schellenbacher, J./ Dahlvik, J./ Fassmann, H./ Reinprecht, C. (Eds.): *Migration und Integration – wissenschaftliche Perspektiven aus Österreich.* Vienna, Austria: Vienna University Press, pp. 277–294.

Konecny, C./ Abel, A./ Autelli, E./ Zanasi, L. (2016): Identification and Classification of Phrasemes in an L2 Learner Corpus of Italian. In: Corpas Pastor, G. (Ed.): *Computerised and Corpus-based Approaches to Phraseology: Monolingual and Multilingual Perspectives.* Geneva, Switzerland: Tradulex, pp. 533–542.

Abel, A./ Glaznieks, A./ Nicolas, L./ Stemle, E. (2016): An extended version of the KoKo German L1 Learner corpus. In: *Proceedings of the Third Italian Conference on Computational Linguistics, CLIC-it 2016.* Naples, Italy.

Frey, J.-C./ Glaznieks, A./ Stemle, E. W. (2016): The DiDi Corpus of South Tyrolean CMC Data: A multilingual corpus of Facebook texts. In: *Proceedings of the Third Italian Conference on Computational Linguistics (CLIC-it 2016).* Naples, Italy.

Lyding, V./ Généreux, M. (2016): Visual Corpus Interface -- Putting Text Visualizations at Use. In: *Proceedings of the 20th International Conference Information Visualisation (IV),* pp. 324–329.

Stemle, E. W. (2016): bot.zen @ EmpiriST 2015 - A minimally-deep learning PoS-tagger (trained for German CMC and Web data). In: *Proceedings of the 10th Web as Corpus Workshop (WAC-X), August 7-12 at ACL and the EmpiriST Shared Task.* Berlin, Germany: Association for Computational Linguistics, pp. 115–119.

Lyding, V./ Schöne, K. (2016): Design and Development of the MERLIN Learner Corpus Platform. In: Calzolari, N./ Choukri, K./ Declerck, T./ Loftsson, H./ Maegaard, B./ Mariani, J./ Moreno, A./ Odijk, J./ Stelios, P. (Eds.): *Proceedings of the Tenth International Conference on Language Resources and Evaluation (LREC'16).* Portorož, Slovenia: European Language Resources Association (ELRA), pp. 635–641.

Chiocchetti, E. (2016): Knowledge Management in Multilingual Areas: Practical Recommendations for SMEs. In: Alessi, G./ Jacobs, G. (Eds.): *The Ins and Outs of Business and Professional Discourse Research. Reflections on Interacting with the Workplace.* Basingstoke: Palgrave Macmillan, pp. 141–160.

Chiocchetti, E./ Ralli, N. (2016): Ein Begriff, zwei Sprachen, unterschiedliche (Rechts)Kulturen. In: Drewer, P./ Mayer, F./ Schmitz, K.-D. (Eds.): *Terminologie und Kultur. Akten des Symposiums, Mannheim, 3.-5. März.* Munich et al.: Deutscher Terminologie-Tag e.V., pp. 103–112.

Aalto, E./ Abel, A./ Auger, N./ Gilly, D./ Schnitzer, K./ Kotimäki, A. (2016): *Die Bildungs- und Unterrichtssprache im Kontext von Diversität lehren: Lehr- und Lernmaterialien für die LehrerInnenbildung. / Teaching the language of schooling in the context of diversity: Study materials for teacher development.* Graz, Austria: ECM.

Institute for Biomedicine Institut für Biomedizin Istituto di biomedicina



Head of Institute
Peter P. Pramstaller

Vice Head of Institute
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Coordinator
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Cristian Pattaro,
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67

Total Staff

26

Postdocs

4

Visiting Scientists
(incoming)

2

University Lecturers
(outgoing)



47

Papers in
Scientific Journals



22

Presentations



42

Total Projects

23

International Projects

Papers 2016/17 Selection

Zanon A, Kalvakuri S, Rakovic A, et al. SLP-2 interacts with Parkin in mitochondria and prevents mitochondrial dysfunction in Parkin-deficient human iPSC-derived neurons and Drosophila. *Hum Mol Genet.* 2017. (Zanon A, Foco L, Guida M, Schwienbacher C, Lavdas AA, Pramstaller PP, Hicks AA, Pichler I)

Wild PS, Felix JF, Schillert A, et al. Large-scale genome-wide analysis identifies genetic variants associated with cardiac structure and function. *J Clin Invest.* 2017. (Del Greco M F, Mascalzoni D, Pramstaller PP, Hicks AA)

Weichenberger CX, Palermo A, Pramstaller PP, Domingues FS. Exploring Approaches for Detecting Protein Functional Similarity within an Orthology-based Framework. *Sci Rep.* 2017;7(1):381. (Weichenberger CX, Palermo A, Pramstaller PP, Domingues FS)

Volta M, Lavdas AA, Obergasteiger J, et al. Elevated levels of alpha-synuclein blunt cellular signal transduction downstream of Gq protein-coupled receptors. *Cell Signal.* 2017;30:82-91. (Volta M, Lavdas AA, Obergasteiger J, Überbacher C, Picard A, Pramstaller AA)

Noce D, Gogele M, Schwienbacher C, et al. Sequential recruitment of study participants may inflate genetic heritability estimates. *Hum Genet.* 2017. (Noce D, Gögele M, Schwienbacher C, Caprioli G, De Grandi A, Foco L, Pramstaller PP, Pattaro C)

Meraviglia V, Wen J, Piacentini L, et al. Higher cardiogenic potential of iPSCs derived from cardiac versus skin stromal cells. *Front Biosci (Landmark Ed).* 2016;21:719-743. (Meraviglia V, Florio MC, Mascalzoni D, Pramstaller PP, Rossini A)

van der Harst P, van Setten J, Verweij N, et al. 52 Genetic Loci Influencing Myocardial Mass. *J Am Coll Cardiol.* 2016;68(13):1435-1448. (Pramstaller PP, Hicks AA)

Teumer A, Tin A, Sorice R, et al. Genome-wide Association Studies Identify Genetic Loci Associated With Albuminuria in Diabetes. *Diabetes.* 2016;65(3):803-817. (Pramstaller PP, Pattaro C)

Teumer A, Qi Q, Nethander M, et al. Genomewide meta-analysis identifies loci associated with IGF-1 and IGFBP-3 levels with impact on age-related traits. *Aging Cell.* 2016;15(5):811-824. (Del Greco M F, Hicks AA, Pramstaller PP)

Ried JS, Jeff MJ, Chu AY, et al. A principal component meta-analysis on multiple anthropometric traits identifies novel loci for body shape. *Nat Commun.* 2016;7:13357. (Pichler I, Pramstaller PP)

Pattaro C, Teumer A, Gorski M, et al. Genetic associations at 53 loci highlight cell types and biological pathways relevant for kidney function. *Nat Commun.* 2016;7:10023. (Pattaro C)

Kilpelainen TO, Carli JF, Skowronski AA, et al. Genome-wide meta-analysis uncovers novel loci influencing circulating leptin levels. *Nat Commun.* 2016;7:10494. (Del Greco M F, Hicks AA, Pramstaller PP)

Ehret GB, Ferreira T, Chasman DI, et al. The genetics of blood pressure regulation and its target organs from association studies in 342,415 individuals. *Nat Genet.* 2016;48(10):1171-1184. (Hicks AA, Pramstaller PP)

Del Greco MF, Foco L, Pichler I, et al. Serum iron level and kidney function: a Mendelian randomization study. *Nephrol Dial Transplant.* 2016. (Del Greco M F, Foco L, Pichler I, Pramstaller PP)

Amin N, Allebrandt KV, van der Spek A, et al. Genetic variants in RBFOX3 are associated with sleep latency. *Eur J Hum Genet.* 2016;24(10):1488-1495. (Del Greco M F, Pramstaller PP, Hicks AA)

Institute for Comparative Federalism

Institut für Vergleichende Föderalismusforschung

Istituto di studi federali comparati



Head of Institute
Francesco Palermo

Coordinator
Paulina Magdalena Borowska

Group Leader
Elisabeth Alber

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Andreas Kiefer
Council of Europe,
Secretary General of the Congress

Cheryl Anne Saunders
University of Melbourne,
Melbourne Law School
Carles Viver i Pi-Sunyer
Government of Catalonia,
Institut d'Estudis Autònoms,
Barcelona



19

Total Staff

8

Postdocs

10

Visiting Professors
(incoming)

8

University Lecturers
(outgoing)



13

Papers in
Scientific Journals



45

Presentations

2

Papers in Conference
Proceedings



22

Total Projects

22

International Projects

Books

Palermo, Francesco e Sara Parolari (a cura di), *Il futuro della specialità regionale alla luce della riforma costituzionale*, Edizioni Scientifiche Italiane, 2016.

Alberton, Mariachiara e Federica Cittadino. *La tutela dell'ambiente tra Stato e Regioni alla luce della riforma costituzionale*, Edizioni Scientifiche Italiane, 2016.

Nicolini, Matteo, Francesco Palermo and Enrico Milano (eds.), *Law, Territory and Conflict Resolution*, Brill/Nijhoff Publishers, Leiden/Boston MA., 2016.

Engl, Alice, Günther Pallaver ed Elisabeth Alber (Hrsg.), *Politika 16 - Südtiroler Jahrbuch für Politik*. Raetia Verlag, Bozen und Baden-Baden, 2016.

Woelk, Jens, Flavio Guella e Gracy Pelacani (a cura di), *Modelli di disciplina dell'accoglienza nell' "emergenza immigrazione"*. La situazione dei richiedenti asilo dal diritto internazionale a quello regionale, Collana Quaderni della Facoltà di Giurisprudenza, Università di Trento, vol. n.22, Trento 2016. PDF at: <https://iris.unitn.it/retrieve/handle/11572/145515/82009/COLLANA%20QUADERNI%20VOLUME%2022.pdf>

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Papers 2016/17 Selection

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Institute for Earth Observation Institut für Erdbeobachtung Istituto per l'osservazione della Terra



Head of Institute
Marc Zebisch

Vice Head of Institute
Claudia Notarnicola

Group Leaders
**Roberto Monsorno,
Claudia Notarnicola,
Stefan Schneiderbauer**

Scientific Advisory Council
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Università di Trento, Department of Information and Communication Technologies
Laura Candela
ASI – Agenzia Spaziale Italiana, Roma

Stefan Dech
DLR – Deutsches Zentrum für Luft- und Raumfahrt, Weßling
Thomas Glade
Universität Wien, Institut für Geographie und Regionalforschung
Roberto Dinale
Provincia autonoma di Bolzano, Ufficio Idrografico



37

Total Staff

13

Postdocs

9

University Lecturers
(outgoing)



24

Papers in
Scientific Journals



53

Presentations

5

Papers in Conference
Proceedings



23

Total Projects

13

International Projects

Papers 2016/17 Selection

F. Greifeneder, C. Notarnicola, G. Bertoldi, G. Niedrist, W. Wagner: From point to pixel scale: An upscaling approach for in-situ soil moisture measurements. *Vadose Zone Journal*. (Accepted: Mar. 2016).

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Institute for Minority Rights Institut für Minderheitenrecht Istituto sui diritti delle minoranze



Head of Institute
Joseph Marko

Coordinator
Günther Rautz

Group Leader
Roberta Medda-Windischer

Scientific Advisory Council
(2013 – 2016)

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Åland Islands Peace Institute
Joshua Castellino
Middlesex University London,
Department of Law

Ilze Brands Kehris
Member of the United
Nations Human Rights
Committee
Ricard Zapata Barrero
Universitat Pompeu Fabra
Barcelona, Department of
Political and Social Science



17

Total Staff

9

Postdocs

3

Visiting Professors
(incoming)

6

University Lecturers
(outgoing)



11

Papers in
Scientific Journals



55

Presentations

2

Papers in Conference
Proceedings



17

Total Projects

15

International Projects

Books

Alice Engl, Günther Pallaver, Elisabeth Alber (eds.) (2016), *Politika 2016 Südtiroler Jahrbuch für Politik*, Bolzano/Bozen: Edition Raetia.

Bruce J. Berman, André Laliberté, and Stephen J. Larin (eds.) (2016), *The Moral Economies of Ethnic and Nationalist Claims*, Vancouver: UBC Press.

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Institute of Mountain Emergency Medicine Institut für Alpine Notfallmedizin Istituto per la medicina d'emergenza in montagna



Head of Institute
Hermann Brugger

Vice Head of Institute
Giacomo Strapazzon

Scientific Advisory Council
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Facharzt Innere Medizin und
Sportmedizin, ehemaliger
ärztlicher Direktor
Abteilung Sportmedizin der
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Peter Hackett
Institute for Altitude
Medicine Telluride, Colorado

Marco Maggiorini
Universitätsspital Zürich
Ken Zafren
Stanford University
California, Division of
Emergency Medicine



12

Total Staff

2

Postdocs

6

Visiting Professors
(incoming)

4

University Lecturers
(outgoing)



12

Papers in
Scientific Journals



53

Presentations



13

Total Projects

11

International Projects

Papers 2016/17 Selection

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Strapazzon G, Falk M, Paal P, Brugger H. The challenge of establishing a correct serum potassium cutoff for in-hospital triage after avalanche-induced cardiac arrest. *Am J Emerg Med* 2016; 34(7):1317

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Institute for Mummy Studies Institut für Mumienforschung Istituto per lo studio delle mummie



Head of Institute
Albert Zink

Coordinator
Frank Maixner

Scientific Advisory Council
(2013–2016)

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Südtiroler Archäologie-
museum, Konservierungs-
beauftragter für Ötzi
Niels Lynnerup
University of Copenhagen,
Department of Forensic
Medicine, Laboratory of
Biological Anthropology

Vito Claudio Fernicola
INRIM – Istituto Nazionale di
Ricerca Metrologica Torino,
Thermodynamics Division
Michael Wagner
Universität Wien,
Department für Mikrobielle
Ökologie



9

Total Staff

4

Postdocs

3

Visiting Professors
(incoming)



5

Papers in
Scientific Journals



25

Presentations



10

Total Projects

10

International Projects

Books

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Institute for Public Management Institut für Public Management Istituto per il management pubblico



Head of Institute
Kurt Promberger

Vice Head of Institute
Josef Bernhart

Scientific Advisory Council
 (2013 – 2016)

Ursin Fetz
 Hochschule für Technik und
 Wirtschaft, Zentrum für
 Verwaltungsmanagement,
 Chur

Marco Meneguzzo
 Università degli Studi di
 Roma “Tor Vergata”

Manfred Röber
 Universität Leipzig,
 Verwaltungsmanagement/
 New Public Management
Paolo Rondo-Brovetto
 Alpen-Adria Universität
 Klagenfurt,
 Abteilung für Öffentliche
 Betriebswirtschaftslehre



8

Total Staff

2

Postdocs

2

Visiting Professors
 (incoming)

3

University Lecturers
 (outgoing)



1

Papers in
 Scientific Journals



3

Presentations

3

Papers in Conference
 Proceedings



12

Total Projects

6

International Projects

Books

Bernhart J, Boscolo S, Decarli P, Mayr C, Promberger K, Steinwandter F. *Wieviel kostet die Gemeindepolitik? Eine vergleichende Analyse der Ausgaben für die gewählten Gemeindeorgane in Südtirol und Tirol/Quanto costa la politica comunale? Un'analisi comparativa delle spese per gli organi elettivi comunali in Alto Adige e in Tirolo*. Eurac Research, Bozen 2017.

Bernhart J, Boscolo S, Promberger K, Steinwandter F. *Personalausgaben der Gemeinden Tirols und Südtirols im Vergleich/Spesa per il personale dei comuni del Tirolo e dell'Alto Adige a confronto*. Eurac Research, Bozen 2017.

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Papers 2016/17 Selection

Bernhart J, Boscolo S, Freitas M, Meneguzzo M, Meneses J, Mititelu C. *La finanza locale ad impatto sociale. Le esperienze europee*. In: Galeone P, Meneguzzo M. *La finanza sociale. Pubblico, Privato, Non Profit: le prospettive comuni in Europa e in Italia*. Rubbettino Editore – Soveria Mannelli 2016, pp. 87-138.

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Institute for Regional Development Institut für Regionalentwicklung Istituto per lo sviluppo regionale



Heads of Institute
Harald Pechlaner
Thomas Streifeneder

Coordinator
Eleonora Psenner

Scientific Advisory Council
 (2013 – 2016)

David Airey
 University of Surrey, School
 of Hospitality and Tourism
 Management
Gianluca Giuliani
 Flury&Giuliani GmbH – Agrar-
 und regionalwirtschaftliche
 Beratung, Zürich

Christian Laesser
 Universität St. Gallen, Institut
 für Systemisches Manage-
 ment und Public Governance,
 Forschungszentrum
 Tourismus und Verkehr
Jürg Minsch
 mensch sustainability affairs,
 Zürich



30

Total Staff

12

Postdocs

1

Visiting Professors
 (incoming)

5

University Lecturers
 (outgoing)



7

Papers in
 Scientific Journals



25

Presentations

7

Papers in Conference
 Proceedings



20

Total Projects

15

International Projects

Books

Cavallaro, F., Streifeneder, T., Ravazzoli, E. (2016): La nuova geografia delle Alpi: le conseguenze delle nuove linee ferroviarie ad alta velocità sul territorio perialpino, Eurac Research, Bolzano.

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IMPRESSUM

Publisher

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Data Analysis

Cinzia Bettella, Uta Fritsch, Stefanie Gius

Thanks to: Margot Braitenberger, Alice Engl, Jennifer Frey, Franz Giuliani, Karina Kössler, Dietmar Laner, Antje Messerschmidt, Eva Maria Moar, Annalisa Onomoni, Alexandra Pichler, Manfred Prunner, Samuel Senoner, Deborah Tomissich, all Team Assistants and all Heads of Institutes.

Graphic Design

Stephanie Innerbichler, Alessandra Stefanut

Illustrations

Oscar Diodoro

Image Editor

Annelie Bortolotti

Printing

esperia srl, Trient / Trento



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