

CURRICULUM VITAE

Complete Name: Manfred Ferdinand Buchroithner
Date and Place of Birth: 17 December 1950 in Wels, Austria
Nationality: Austrian
Profession: Cartographer, Remote Sensing Expert, Geologist
Family status: Married with Mag.phil. Barbara, née Huss (5 May 1979)
1 son: Armin, born 12 September 1981
1 daughter: Juliane, born 9 February 1983

Education/Formation:

High School: 3. Bundesgymnasium in Linz/Donau, Austria. Final Exam 23 June 1969.

1969/70: Military service: training as officer of the reserve.

WS 1970/71 - WS 1976/77: Studies in Geology and Palaeontology as a First Major, in Mineralogy and Petrology as a Second Major as well as Philosophy as Minor at the University of Graz, Austria.

WS 1973/74: Study stay at the University of Leyden, NL.

As from summer 1974 on: PhD Thesis (topic: Palaeozoic Geology of the Pyrenees) at the University of Graz (Distinction). Conferral of Doctorate 26 January 1977.

1976/1977: Professional Training for Fully Certified Austrian UIAGM Mountain and Ski Mountaineering Guide. Professional Licence 10 August 1977.

1979/80: Applied work and post-doctoral studies in "Geological Survey Using Aerial Photography and Other Remote Sensing Techniques" and in "Cartography" at the International Institute for Aerospace Survey and Earth Sciences (ITC) in Enschede, NL. Diploma Thesis in Central Spain. Diploma Graduation 29 August 1980 (Distinction).

February/March 1981: 2 Programming Courses in "Real-Time Executive IV B Session Monitor" in Vienna.

October 1981: Research stay at the Remote Sensing Unit of the Land Use Lab of the Technical Research Centre of Finland (VTT) in Espoo, Finland.

SS 1983: Post-Doctoral Fulbright Scholarship for Geological Remote Sensing: Fort Worth (Texas), Denver (Colorado) and Stanford University (California).

SS 1984: Habilitation/Venia Docendi: "General Geology, Airphoto Interpretation and Remote Sensing", Faculty of Natural Sciences, University of Graz, Austria; Certification 14 June 1984.

February 1989: Pedagogic Course for University Lecturers "Teaching, Studying, Examining" ("Lehren, Lernen, Prüfen") at the Graz University of Technology, Austria.

Professional Experience and Milestones:

Group Leader ("Gruppenführer") of the Austrian Nature Protection Youth (Österreichische Naturschutzjugend); Leader Exam 14 July 1968.

As from WS 1971/72: 15 months Student Assistant ("Studienassistent") at the Geological Institute of the University of Graz: lecturing and research; fieldwork in Austria, Spain, Southern France and Yugoslavia.

Summer 1975: Geologist of an international scientific expedition to the Eastern Hindu Kush and Afghan Pamir (3 months).

May 1977 - April 1979: Research Fellow at the Geological Institute of the University of Graz: fieldwork and research in the whole European Mediterranean, incl. Morocco, the Balears and Chios Island.

Summer 1979 and summer 1981: 4 months of geological fieldwork for the Austrian Bleiberg Mining Company in the Karawanken Range, Southern Austria.

October 1980 - April 1984: Scientist-in-charge/system manager of the image processing system and Deputy Head at the Department for Satellite Cartography of the Austrian Academy of Sciences, Vienna.

Summer 1983: Contract for authorship of the book "Fernerkundungskartographie, Band 2 ("Remote Sensing Cartography, Volume 2") of the Encyclopaedia "Kartographie und ihre Randgebiete" ("Cartography and its Fringes", published by Deuticke, Vienna, in 1989; 525 pp.).

May 1984 - April 1985: Responsible for remote sensing activities at the Institute for Image Processing and Computer Graphics of the Graz Research Center, Austria.

As from middle of 1980s: For some 10 – 12 years responsible course instructor resp. Course leader for the training of the Youth Group Leaders of the Austrian Alpine Club (Österreichischer Alpenverein), Federal State of Styria/Steiermark: rock-climbing, glacier-touring and ice-climbing, snow/ski-mountaineering (each course one week every year).

As from middle of 1980s: For some 10 – 12 years instructor for geology and cartography for the professional training of the Austrian UIAGM Mountain and Ski-Mountaineering Guides (two days every summer).

1985 – 1988: External geological mapper of the Austrian Federal Geological Survey.

May 1985 - September 1992: Director of the Institute for Image Processing and Computer Graphics of the Graz Research Center (now Joanneum Research), Graz, Austria.

April 1988: U.N. Expert for Remote Sensing in Ile Ife, Nigeria.

SS 1989: Invited Visiting Professor at the University of Munich, Geographical Institute.

As from WS 1992/93: Full Professor and Chair of Cartography at the Dresden University of Technology (appointed May 1992). Retirement by the end of SS 2016.

WS 2000/2001: Invited Visiting Professor at the University of Salzburg, Austria, Faculty of Geosciences.

SS 2002: Invited Visiting Professor ("Professeur Invité") at the Remote Sensing Department of the École Nationale Supérieure des Mines de Paris in Sophia Antipolis, France.

WS 2003/04 – WS2007/08: Geschäftsführer (Manager) of the German Society for the Promotion of Geoinformation.

WS 2007/08 – WS 2015/16 : Chairman (Vorsitzender) of the German Society for the Promotion of Geoinformation.

WS 2016/17 – WS 2017/18 : Vice Chairman (Stellvertretender Vorsitzender) of the German Society for the Promotion of Geoinformation.

SS 2015 : *Invited Visiting Professor at the Department of Meteorology of the Islamabad Campus of COMSATS, the Institute of Information Technology (CIIT), Pakistan's top university according to the Nature Index Ranking.*

WS 2015/2016 : *Invited Visiting Professor at Department of Foreign Languages, Literatures and Cultures of the Università degli Studi di Bergamo, Italy, Chair of Geography (Prof. Emanuela Casti) and Centro Studi sul Territorio and Diathesis Lab (www.unibg.it/diathesis).*

2017: *Appointed member of the Editorial Board of the digital encyclopedia "Austria Forum".*

2017: *After retirement on 1st October 2017: Appointed "Senior Professor" of TU Dresden until September 2019.*

From 2017 onwards: *Reviewer for journal "Nature".*

2018: *June: Re-appointed Member of the three-person Scientific Advisory Board of the Consortium for Comparative High-Mountain Research.*

2018: *October: Invitation accepted to become member of the Editorial Board of the internationally renowned "Journal of Geographical Research" (until September 2019).*

2019: *January: Invitation accepted to become member of the Editorial Advisory Board of the internationally renowned "International Journal of Human-Computer Interaction".*

2019: *September: Invitation to become member of the Editorial Board of the journal "Insights of Scientific and Biomedical Research (ISBRJ)": declined.*

2020: *May: Appointed member of the Editorial Board of the Assiut University Bulletin for Environmental Researches.*

2020: *December: Invitation to become member of the Editorial Board of the "Journal of Biomedical Research & Environmental Sciences": declined.*

2021: *Juli: Appointed Associate Editor of the internationally renowned journal "Geomatics, Natural Hazards and Risk".*

2021: *August: Invitation accepted to become member of the Editorial Advisory Board of the internationally renowned "Journal of Water Resources, Engineering, Management, and Policy".*

1985 – present: *Invited Speaker at many international conferences, symposia and workshops as well as for several series of invited lectures and as instructor at many summer schools and similar courses.*

1985 – present: *Reviewer for a large number of international journals, for publishing companies regarding book and map publications, for national and international research awards as well as for job staffing in academia, foremost professoral positions and for numerous PhD theses all over the world as external reviewer.*

1985 – present: Numerous scientific trips of some days up to 7 weeks in various European countries, North and South America, Africa, Asia and Australia (incl. fieldwork up to an altitude of 6893 m).

Membership of the *Editorial Boards*:

1991 – 1997: *EARSel Advances in Remote Sensing*; also Editor-in-Chief (1992 – 97)

1997 – 2002 : *Photogrammetrie – Fernerkundung – Geoinformation - PFG*

2001 – 2007 : *Journal of the Indian Society of Remote Sensing*

2006 – 2011: *Landscape Online (Journal of the International Association for Landscape Ecology, Chapter Germany [IALE-D])*

2010 – present: *Geomatics, Natural Hazards and Risk*

200? – present: *Kartographische Nachrichten*

2010 – present : *International Journal of Health Geographics - IJHG*

2012 – present: *The Cartographic Journal*

2016 – present: *Austria Forum, an information portal with Austrian aspects and common knowledge* (<http://austria-forum.org>).

2018 – present: *Journal of Geographical Research*

2018 – present: *Journal "Land"*

2020 – present: *Assiut University Bulletin for Environmental Researches*

- 2021- present: Associate Editor (invited) of *Geomatics, Natural Hazards and Risk*

- 2021 - present: *Editorial Advisory Board* of the "*Journal of Water Resources, Engineering, Management, and Policy*".

Reviews of Research Projects:

1990 – present: *Reviewer* of individual *research projects* in Austria, Germany, Switzerland, Sweden, the Czech Republic and Nepal, of national research programmes in Belgium and Sweden as well as of projects submitted to the Austrian Space Association (ASA), German Aerospace Establishment (DLR), the European Space Agency (ESA) and the European Union (EU). Equally, reviewer for several international ISI journals with a noticeable impact factor.

Lecturing:

Numerous lectures and practical courses in the fields of geology, palaeontology, geomorphology, glaciology, remote sensing/image processing and, foremost, cartography/GIS incl. 3D visualisation:

Univ. Vienna (approx. 7 years), Univ. Graz (approx. 18 years), TU Graz (7 years), Mining Univ. Leoben (approx. 5 years, each summer semester), Univ. Munich (1 semester), Univ. Salzburg (2 x 1 semester), École Normale Supérieure de Paris in Sophia Antipolis (1 semester), Univ. Stockholm (7 years, winter or summer semester), COMSATS Islamabad (1 semester), Univ. Bergamo (1 semester); TU Dresden (WS 1992 until SS 2016 full lecturing obligation), Federal Professional Training for Certified Austrian Mountain and Ski Mountaineering Guides in Geology and Cartography (approx. 10 years).

Diploma, MSc and Doctoral Theses:

Until present 16 MSc Thesis, 121 Diploma Theses, and 76 PhD Theses (co-) supervised and reviewed. Prime supervisor and main reviewer of 40 PhD theses. Presently supervisor of 6 more PhD theses in preparation.

Habilitations (veniae docendi) and Professorships:

Mentor in three Habilitation procedures in the Faculty of Environmental Sciences of TU Dresden and external reviewer in three more Habilitation procedures in Germany.

Further, external consultant and reviewer within appointment processes for several Associate and Full Professorship positions in Europe, North and South America, Africa and Asia.

Research and Application Projects:

Project manager of several - frequently international - projects funded by

U.N. Food and Agriculture Organisation (FAO; Principal Investigator [PI] of 3 projects),

U.N. Development Project (UNDP) & World Bank (member of 1 project),

NATO (Programme Science for Peace; PI of 2 projects),

European Union (EU; PI of one four-country project),

Council of Europe (CEU; PI of 2 projects),

NASA (Co-Investigator [Co-I] of 3 projects),

ESA (Co-I of 2 and PI of 5 projects),

NASDA Japan (PI of 1 project),

German Aerospace Center (DLR; PI and Co-I of several projects),

German Research Council (DFG; PI of 3 projects, Co-I of one project),

German Federal Ministry of Education and Research (BMBF; PI of 4, Co-I of 4 projects),

German Foreign Academic Exchange Service (DAAD; PI of 6 projects),

German Alpine Club/Deutscher Alpenverein (DAV; PI of 3 projects),

Alexander von Humboldt Foundation (AvH; support of 5 post-doctoral research fellows working in cooperation with me),

Austrian Space Agency (ASA; PI of several projects),

Saxonian Ministry of Environment and Traffic (SMUV; Co-I of 3 projects),

Saxonian Development Bank/Sächsische Aufbaubank (SAB; PI of 2 projects),

Austrian Ministry of Science and Research (BMWF; PI of approx. 10 projects),

Austrian Science Foundation (FWF; PI of 5 projects),

Government of Styria/Austria (PI of several projects), etc.

National Geographic Society (NGS; Co-I of 2 projects)

Government of Tanzania (Co-I of 1 project)

NB: Only projects of a certain temporal (e.g. one year) and/or financial significance are listed above. Most of these projects dealt - at least in part - with (3D) visualisation and/or the application of remote sensing data to environmental problems, with special emphasis on the monitoring of dynamic phenomena and natural hazards. Major geographic area of interest are high-alpine terrains, in particular the Alps, High Asia and the Andes.

Awards, Honours and Achievements:

- 1973 – 2 x “Begabtenstipendium” (“Talented Students Grant”) of the Austrian Government
- 1975: for outstanding performances in university studies.
- 1978 March 2nd: Appointed member of the Österreichischer Alpenklub (ÖAK) in Vienna. The ÖAK is an international group of performance-oriented alpinists. Admission to the club requires the advocacy of two bailsmen who are ÖAK members.
- 1979: Austrian Theodor Körner Award for Promotion of Science and Arts.
- 1982: Junior Scientist Award of the Federal State of Upper Austria.
- 1985: Appointed “Permanent Visiting Professor” (“Permanenter Gastdozent”) for “Geo-Remote Sensing” at the Graz University of Technology (December 5).
- 1985: Appointed member of the Programme Board of the Research Initiative “Micro-Electronics – Information Processing” of the Austrian Government 1985 – 1989 (for image processing).
- 1988: Invited Lecturer for the study course in “Environmental Protection” at the Graz University of Technology for “Digital Image Processing, Remote Sensing and Digital Terrain Models” (until in 1993).
- 1988: Selection of the educative film “Radar Stereomapping from SIR-B images of Mt. Shasta” for the final programme of the AGROFILM Festival 1988 in Nitra, Czech Republic. Film produced by Manfred Buchroithner & Hannes Raggam.
- 1988: Appointed member of expert team of U.N. Food and Agriculture Organisation (FAO).
- 1989: Appointment as (only European) Member of the Board of Directors of the Center of Earth Resource Management Applications (CERMA) in Springfield, Virginia, USA, until its closure approx. 1996.
- 1990: Appointed member of expert team of U.N. Industry Development Organisation (UNIDO).
- 1991: Appointment as Co-Editor, 1992 as Editor of “Advances in Remote Sensing” until their disclosure by EARSeL in 1997.
- 1991: Elected Treasurer of the European Association of Remote Sensing Laboratories (EARSeL; until 1993).
- 1992: Appointed Scientific Advisor of the “Qomolungma Nature Preserve” (Mt. Everest National Park) in Tibet.
- 1993: Elected Vice Chairman of the European Association of Remote Sensing Laboratories (EARSeL; re-elected in 1995 until 1997).
- 1994: Elected Full Member (“Ordentliches Mitglied”) of the German Geodetic Commission at the Bavarian Academy of Sciences. [Today, the appointment is made by the Section Natural Sciences, Mathematics & Technical Sciences of the Bavarian Academy of Sciences.]

- 1994: Appointed "Euro-Ingenieur" ("Eur Ing") honoris causa (honorary) by FEANI (Fédération Européenne d'Associations Nationales d'Ingénieurs) in Brussels.
- 1999: Elected Secretary General of EURO-STRIM (Association for the Establishment of a European Master and Doctorate in Space Technologies for Risk Management; until its dissolution some 5 years later).
- Around 1996: Elected/appointed Main Reviewer ("Hauptgutachter") of the German Research Council (Deutsche Forschungsgemeinschaft – DFG) for 4 years.
- 1999: 2 Best Map Awards "Excellence in Cartography" (together with Robert Schenkel) in the Category "Other Maps" at the International Cartographic Congress (ICC) 1999 in Ottawa: Official Committee Evaluation and Evaluation of the Public.
- 2000: Links2Go "Events" Award for one of the "20 Best Conference Homepages Worldwide" for the 20th EARSeL Symposium, 14 - 16 June 2000 in Dresden, Germany.
- 2000: Invited for "JRC Lecture" at the Joint Research Centre in Ispra of the European Commission.
- 2001: Appointment as Member of the Board of Directors of cysat AG (Corporation) in Berlin (active for about 5 years).
- 2001: Best Map Award "Excellence in Cartography" in the Category "Other Maps" at the International Cartographic Congress (ICC) 2001 in Beijing, China (together with Stefan Liehmann).
- 2002: Elected Member of the Academy-like "Consortium for Comparative High-Mountain Research" (Arbeitsgemeinschaft für vergleichende Hochgebirgsforschung), Munich.
- 2003: Best Map Award "Excellence in Cartography" in the Category "Other Maps" at the International Cartographic Congress (ICC) 2003 in Durban, South Africa (together with Thomas Gründemann).
- 2004: Best Poster Award at the XXth ISPRS Congress, 12-23 July 2004 Istanbul, Turkey.
- 2004: Elected Geschäftsführer (Manager) of the German Society for the Promotion of Geoinformation (FVGG; until 2007).
- Around 2005 : Appointment as Definite Reviewer of Alexander von Humboldt Foundation.
- 2006: HMRSC Award of the HMRSC Group of the International Cartographic Association (ICA).
- 2006: Award of Appreciation of the Fédération Internationale des Géomètres (FIG)/Arab Ligue of Surveyors.
- 2007: Elected Chairman (Vorsitzender) of the German Society for the Promotion of Geoinformation (FVGG; until 2015).
- 2008 : Ehrenurkunde 2008 der TU Dresden für Familienfreundlichkeit (Deed of Honour 2008 of TU Dresden for Family Friendliness).
- 2009: Elected Vice President (International) of the German Cartographic Society (DGfK; until 2017; re-elected until 2017).
- Around 2005: Appointment as permanent reviewer (Gutachter) of the Alexander von Humboldt Foundation.
- 2009: Award of the Golden Badge of Honours ("Goldene Ehrennadel") of the German Cartographic Society (DGfK).
- 2010: Appointed member of the three-person Research Advisory Board ("Forschungsbeirat") of the "Consortium for Comparative High-Mountain Research" (Arbeitsgemeinschaft für vergleichende Hochgebirgsforschung), Munich.

- 2010: Award of Friedrich-Hopfner Medal, the highest Austrian distinction in the field of geodesy.
- 2012: Elected Vice Chairman (“Zweiter Vorsitzender”) of the "Consortium for Comparative High-Mountain Research" (Arbeitsgemeinschaft für vergleichende Hochgebirgsforschung), Munich.
- 2013: Second Prize “Maps on Paper” Award at International Cartographic Congress (ICC) 2013 in Dresden, Germany.
- 2013: Diploma for Outstanding Services to ICA (Intl. Cartogr. Assoc.).
- 2013: Map sheets Khumbu Himal and Shorong Hinku: “ICA Map of the month” in December.
- 2014: “Ehrenbrief” (“Honorary Mention”) of the German Cartographic Society (DGfK).
- 2015: Elected Vice Chairman (2. Vorsitzender) of the German Society for the Promotion of Geoinformation (FVGG; until 2017).
- 2016: Autostereoscopic (“true-3D”) lenticular map “Antarctica and the Southern Ocean Seafloor” selected for the Museum of Best Contemporary Maps of the World in Redlands near San Francisco. Generated together with Lars Radig.
- 2016: “Goldenes Ehrenzeichen” (“Golden Badge of Honour”) of the Ramsau am Dachstein Community, Austria, for tourism support of Ramsau Region, Austria (students from 43 nations and science tourists from various countries for over 25 years).
- 2017: *Cavers’ Choice Best Poster Award* at the 17th International Congress of Speleology, July 2017 in Sydney, Australia.
- 2017: After retirement on 1st October 2017: Appointed “Senior Professor” of TU Dresden until September 2019.
- 2018: March: Award of “Silberne Ehrenmedaille” (“Silver Medal of Honour”) of the German Cartographic Society (DGfK)
- 2018: May: Elected Member of the EU Academy of Sciences (EUAS).
- 2018: June: Re-appointed Member of the three-person Scientific Advisory Board of the Consortium for Comparative High-Mountain Research.
- 2018: October: Invitation to become member of the Editorial Board of the internationally renowned journal “Journal of Geographical Research”: accepted.
- 2018: December: Invitation to become member of the Editorial Board of the internationally renowned journal “Land”: accepted.
- 2019: March: Denny Medal of the Institute of Marine Engineering, Science and Technology (InMarEST) for the most worthy paper published by the Institute in the Journal of Operational Oceanography in 2018. (DOI: 10.1080/1755876X.2018.1438343; jointly with co-authors Emil Bayramov and Martin Kada).
- 2020: *January: Election of the Lidar- and GPR-based ice-mass surveying project in Eisriesenwelt, the world’s biggest ice cave, in the Austrian Alps (initiated and managed by M.F. Buchroithner), as one of the „Top Ten der Dresdner Forschung 2019“ (“Top Ten of the Dresden-Based Research in 2019”) including all fields of science, carried out by Sächsische Zeitung (Saxonian Newspaper), Germany’s biggest regional newspaper.*
- 2020: May: Appointed *member* of the *Editorial Board* of the *Assiut University Bulletin for Environmental Researches*.
- 2020: December: Invitation to become *member* of the *Editorial Board* of the journal “*Journal of Biomedical Research & Environmental Sciences*”: declined.

2021: January: Award "Excellent Reviewer" in recognition of the reviews contributed to the *Journal of Geological Research*.

2021: Juli: Appointed Associate Editor of the internationally renowned journal "Geomatics, Natural Hazards and Risk".

2021: August: Invitation accepted to become member of the Editorial Advisory Board of the internationally renowned "Journal of Water Resources, Engineering, Management, and Policy".

1985 – present: Invited Speaker at many international conferences, symposia and workshops as well as for series of invited lectures and as instructor at many summer schools and similar courses.

1985 – present: Reviewer for a large number of international journals, for publishing companies regarding book and map publications, for national and international research awards as well as for job staffing in academia, foremost professoral positions and for numerous PhD theses all over the world as external reviewer.

Patents:

06 December 2004: Two German and International Patents granted for "Topographische Karte" ("Topographic Map"): DE 10 2004 060 069.4, and "Dreidimensional visuell erfassbare topographische Karte" ("Three-Dimensionally Visually Perceptive Topographic Map"): DE 10 2004 060 070.8 (together with Thomas Gründemann and Klaus Habermann).

2013: One International Patent „Verfahren und Anordnung zur Ortung und Bergung von Personen“ („Method and Assembly for Locating and Rescuing People“): EP 13158991.3-1812 (zusammen mit Guido Ehlert, Bernd Hetze, Horst Kohlschmidt, Nikolas Prechtel).

Languages:

Mother tongue *German*; fluent written and spoken *English*, "Certificate of Proficiency in English" of the University of Michigan, Ann Arbor (18 December 1968); medium spoken command of *French* and *Spanish*; basic spoken command of *Dutch* and *Italian*.

Milestones:

Austrian Military Champion in Orienteering in 1970.

First digitally produced medium-scale satellite image maps of Austria (excellent appraisal in scientific literature by Prof. Karl Kraus) in the early 1980ies.

Second photogrammetric restitution for highly accurate geological mapping worldwide, using self-acquired stereo-photographs of the Selesela Koh-e Wakhan (Afghanistan), 1976.

First Map of Geological Lineaments of Austria (excellent appraisal in scientific literature by Prof. Herbert Paschinger) in 1984.

5. Agrofilm-Festival, August 1988 in Nitra, Czechoslovakia: Film "Radar Stereomapping from SIR-B Images of Mt. Shasta" selected for the programme of the final session.

First geological map of the highest peak of the Hindu Kush, Tirich Mir (7708 m) in 1985. Until present still unprecedented (publicly available) relief information of Tirich Mir Massif in this geological map.

Initiator and founder of the International Symposium Series “High-Mountain Remote Sensing Cartography” (together with Robert Kostka) which took place biannually 1990 – 2008 (10 symposia; in 1998 integrated into the ICA Commission on Mountain Cartography).

Presentation of the first modelling and cartographic depiction of snow avalanche hazards in the Austrian Alps: Example Planneralpe/Styria at INTERPREVENT Conference in Graz, Austria, 1988.

Some of the internationally first tests of facetting algorithms for an optimized generation of milled solid terrain models (Fräsmodelle) in the early 1990ies.

Initiator of the ICA Commission on Mountain Cartography on the occasion of the ICC 1997 in Barcelona.

Co-Initiator of the ICA Commission on Planetary Cartography on the occasion of the ICC 1997 in Barcelona (together with Kira Shingareva).

First holographic relief map of the world (proofed by literature, Prof. Harold Moellering) 1998.

First geological GIS of the Himalaya System (Geological Map of Chitral) in 2000.

First digital temporal map series worldwide on an autostereoscopic digital display 2000.

First autostereoscopic relief representation on a lenticular foil map 2002.

Approx. 120 cm x 250 cm (lenticular) autostereoscopic (= “true 3D”) image map of Valle Marineris on Mars mounted at the Space Museum of the European Space Agency (ESA) in Noordwijk, NL, in summer 2004.

Initiator of first ICA Symposium “Cartographic Cutting-Edge Technology for Natural Hazard Management” in Dresden in 2004 in which led to the foundation of the ICA Working Group on Cartography on Early Warning and Crisis Management through Milan Konecny.

Until present still best (publicly available) map of Ojos del Salado Massif (highest volcano on earth, 6893 m) published in 2004.

Creation of the term “VR Cartography”: public presentation and description at the ICC 2005 in A Coruna, Spain.

Until present still best (publicly available) map of Sierra de San Pedro in the Atacama Andes published in 2006.

Initiator, mastermind and organizer of the first European (civilian) real-time transmission of true-3D geodata for stereoscopic vision from a lecture hall at TU Dresden (polarisation glasses) to a 3D CAVE at the University of Trier in January 2006 (significant media reports).

First (civilian) stereo-plotting worldwide of 1961 Corona KH 4 intelligence imagery in 2008.

Initiator, mastermind and organizer of the first night rescue operation worldwide in a steep mountain face based on a highly detailed rockface model and DGPS (Dachstein South-Face, Austria; 3500 m horizontal, up to 1000 m vertical) in 2009/2010.

Initiator, mastermind and organizer of terrestrial laser-scanner surveying of the Gomantong Cave System in Borneo/Malaysia in 2012 and 2014, leading to the biggest true-3D data model of a cave worldwide.

Initiator, mastermind and organizer of *terrestrial laser-scanner surveying of the ice masses of the biggest ice cave on earth, the Eisriesenwelt* in the Tennen Mountain Massif, Austrian Alps, in 2010/2013/2016/2017/2019.

Competitor for and *Conference President of the 2013 International Cartographic Conference* in Dresden.

Initiator, mastermind and cartographic responsible of the *first map of snow avalanche risks in South America* "Laguna del Maule Winter Trails, Central Chile, 1:35,000" (Ed. TrekkingChile, 1st ed. 2015).

Globally first autostereoscopic representation of two overlaying relief surfaces (Ice and rockbed) in a lenticular foil map (Antarctica, published by Alfred Wegener-Institute/Germany) in 2015. Since 2016 on display in the *Museum of Best Contemporary Maps of the World in Redlands near San Francisco*.

Mounting of the *world's largest (lenticular) autostereoscopic (= "true 3D") landscape display (250 cm x 625 cm)*, generated by Manfred Buchroithner and Dirk Stendel, in the Planai Museum in Schladming/ Austria, in Spring 2016.

Initiator, mastermind and organizer of areal *ground-penetrating radar* surveying of the ice masses of the biggest ice cave on earth, the Eisriesenwelt in the Tennen Mountain Massif, Austrian Alps, in April 2017. *Globally first areal GPR ice-depth mapping-campaign in a cave*.

Scientific publications, maps, films, and Technical Reports:

Over 770 papers and maps (roughly 730 listings in *ResearchGate*), approx. 185 of them as single author; some 135 papers in *ISI journals*; several (video) films about remote sensing, surveying, mapping, high-mountain research and (3D) visualisation.

Hobbies:

Singing: Second half of the 1960s and beginning of the 1970s: for about 5 years member of the internationally reknowned *Sing- und Spielgruppe Oberösterreichischer Lehrer*, since 1985 after his founder and former director named *Bachl-Chor*.

Swimming: one 3rd rank in Austrian Championships (Age Class 12 – 14), numerous 2nd and 3rd ranks in various Upper Austrian Championships (Age Classes Youth, Juniors and General).

Military Pentathlon: 2nd in Team Competition of the Austrian Armed Forces, Division 3 ("Heeresgruppe 3" Tyrol & Vorarlberg) in 1970.

Orienteering: Champion of Bataillon of Division 3 ("Heeresgruppe 3" Tyrol & Vorarlberg) and *Champion of the Austrian Armed Forces* in 1970.

Wild-Water Kayaking: One first descent in the Niedere Tauern Range (Talbach: Tetter-Katarakt).

Alpinism: Extreme forms of rock, ice and ski activities. 1975 first ascent (solo) of Koh-e Seh Asp-e Safed (6101 m) and second ascend of [Koh-e Bardar](#) (6078 m) via the North Ridge, both in the Afghan Pamirs, 1978 a new direct route through Nevado Rasac East-Face (6040 m) in the Cordillera Huayhuash, 1992 first ascent of Tenzin Gyatso Peak (Tibetan Himalaya,

south of [Karo La](#), later in Chinese maps indicated as [Jitan Zhoma](#) (6004m), 2009 solo ascent of Nevado Tres Cruces Sur (6 749 m) in the Atacama Andes and solo ascents of several more 6000 m summits in the Andes. Several first ascents of rock routes in the Eastern Alps.

Marathon-Running: Some first and top ranks in international amateur races (in Austria) in the Age Classes of 40 and plus in public *mountain marathons*.

Graz, 28/10/2021