# CURRICULUM VITAE

*Dr. Gerald Spreitzhofer*

**Name**: Mag. Dr. Gerald Spreitzhofer

**Born**: February 12, 1968 in Neunkirchen (Austria)

**Citizenship**: Austria

**Languages**: German, English, Spanish, French

**Current Position:** CEO MetGIS GmbH

# Professional Education

**University**:

1986 - 1992: **Master study** ("Magister"-degree) of Meteorology and Geophysics at the University of Vienna. Master thesis: "Severe snowstorms in Austria as seen from the statistical and synoptic points of view)

1993 - 1996: **Ph.D.-dissertation** (composed in Boulder, USA); Ph.D.-degree from the University of Vienna. Thesis: "The WELS weather prediction system– adaptation and validation for the Alpine region"

1994: Courses in mountain climatology and glaciology at the Univ. of Colorado in Boulder (USA)

**Further Education and Certificates (excerpt)**:

**Meteorology:**

1997, 1998: Advanced training classes at the European Center for Medium Range Weather Forecast (ECMWF; in Reading, UK): predictibility, parametrizations, data assimilation and use of satellite data

2002: Satellites and meteorology, DLR/Oberpfaffenhofen (Germany)

2009: Tutorial for the WRF atmospheric model in Cambridge (UK)

**Economics/Business:**

2006: Marketing class and economics crash course with life-science.at (Vienna, Austria), acquisition of the **European Business Competence Licence (EBCL)**

2010: Training class for European Business Competence Licence (EBCL), Level B, at VHS Simmering

2001, 2010: Project Management Courses at University of Zürich (Switzerland) and VHS Meidling, Vienna

2011: **International Project Management Certification from IPMA** (Level B), Vienna (Austria)

**Others:**

1995, 1996, 2009: Spanish courses in Boulder (USA), Quito (Ecuador) and Vienna (Austria; at LAI)

2012: HTML and Web Design classes, University of Vienna (Austria)

# Work and Research Experience

## Stage 1: Work at International Research Institutes and Universities

**Essentials:**

**Research**: From 1994 to 2013, Spreitzhofer conducted international research in various countries (USA, Switzerland, Japan, Chile, Argentina, Peru and Austria), partly as a scientific consultant and partly as a senior researcher.

**Publications**: More than 50 papers have been published by Spreitzhofer in 4 languages (German, English, French and Spanish) in international journals and conference proceedings, mostly as lead author. The papers were mostly related to numerical weather forecast modeling, snowstorm research, graphical user interfaces, snowpack modeling, synoptic climatology and road weather forecasts.

**Conferences**: Around 50 scientific conferences in 20 countries on 4 continents have been attended, mostly with oral or poster presentations. These events were related to topics such as climate change, snow, avalanches, mountain meteorology, road weather and geoinformatics.

### Early Career:

**1994 - 2000**: Work for the American ***WELS Research Corporation*** (since 1999 doing business as **Alden Electronics, Inc**.); partly at the University of Vienna, partly in Boulder, Colorado, **USA** (1994-1995, 1997). Some of the major work tasks included the adaptation of the WELS mesoscale weather prediction computer model and graphical user interface to the European environment, data decoding and assimilation, model nesting, model verification, test of various parametrizations schemes, automation of the forecast processing for the operational employment.

**2001 - 2003**: Scientist position at the ***Swiss Federal Institute for Snow and Avalanche Research (SLF)*** in Davos, **Switzerland**. Major work tasks were the construction of an advanced Java-based GUI for the output of snowpack models and downscaling of the output of meteorological forecast models.

**Aug. - Nov. 2003**: Work as a consultant at the ***Servicio Nacional de Meteorologia e Hidrologia (SENAMHI)*** in Lima, **Peru**. The principal subject of the work was the design of a combined Java-based geographic and meteorological information system adjusted to the specific needs of the Peruvian Weather Service.

**Mar. 2004 – Mar. 2005**: Work for the Japanese ***National Research Institute for Earth Science and Disaster Prevention (NIED)***, Nagaoka Institute of Snow and Ice Studies, partly as a visiting scientist in **Japan**, partly in Austria. Extension of the visualization system designed in Peru, development of a concept to integrate the Swiss snowpack visualization into the geographic and meteorological visualization.

**July – Sept. 2005**: Work at the ***Instituto Argentino de Nivología, Glaciología y Ciencias Ambientales (CRYCIT/IANIGLA)*** in Mendoza, **Argentina**, as a visiting scientist. Inclusion of high-resolution terrain and meteorological data of the Andes into the visualization system.

**Oct. 2005 - 2012**: Work at the Institute of Meteorology and Geophysics, ***University of Vienna,*** **Austria.** Work included the design of high-resolution vector data bases, the coupling of meteorological and geographic information systems, the terrain-related representation of meteorological forecast parameters (focussing on snow) and the development of the operational forecast system MetGIS.

**Jan./Feb. 2008**: During a research stay at the **University of Chile** in Santiago de **Chile** work preparing the combination of MetGIS forecasting algorithms with the WRF model was processed.

**Sept. 2009 – Sept. 2012**: Coordination of a research project ("Optimization of GIS-based meteorological forecast systems") of the Austrian Science Foundation (FWF) and a number of smaller scale customer-oriented projects. Continuation of the development of MetGIS. Work focused on the improvement of the forecast of the snow line, of temperature inversions and of the distribution of precipitation, the issue of point and line forecasts.

## Stage 2: Work as Founder and CEO of MetGIS GmbH (www.metgis.com)

**Essentials:**

**Startup founder**: Based on the results of his previous research, Spreitzhofer founded in April 2013 the company MetGIS GmbH, a steadily growing spin-off of the Institute of Meteorology and Geophysics, University of Vienna, Austria. MetGIS is specialized in world-wide extremely high resolution operational weather forecasting, historical weather data construction, snow cover simulations and 3d-weather visualization.

**CEO:** Spreitzhofer is since the company's very start its CEO. His main tasks are acquisition of R&D money, coordination of research projects related to the improvement of numerical forecasts models and graphical user interfaces, business development, support of existing customers and sales promotion.

**Industry contacts:** Most company customers were directly acquired by Spreitzhofer at conferences, trade shows and other events. Customers stem from various industries such as tourism, energy, snow business, agriculture, traffic and logistics. Geographically, they cover a wide range, from Chilean mining companies and Canadian consulting firms to avalanche warning services in northern India and Bhutan's weather service.

**Awards:** Already at an early company stage, Spreitzhofer accepted in 2017 on behalf of MetGIS the "Global Born Champion"-award from the Austrian Chamber of Commerce for rapid international growth.

### Company R&D Projects:

Since MetGIS was founded, Spreitzhofer has designed and managed a number of major R&D projects, some of which were carried out in-house and others in collaboration with national and international partners. The projects were partly financed by Austrian funding agencies (FFG, Vienna Business Agency, AWS, WAFF), and partly via international channels (ESA, Eureka, EU-H2020).

The following table provides time frames and titles of the most important projects. Spreitzhofer was/is the overall manager of all listed projects, except for two projects marked by a star (*) (here he coordinated only the MetGIS work in the project).

| Project Duration | Title of the R&D Project lead by Spreitzhofer |
|---|---|
| 12/2012 - 12/2014 | Optimization of innovative methods for the **calculation and visualization** of extremely high-resolution weather forecasts |
| 09/2015 - 09/2016 | Creation of smart **APIs** for meteorological forecast data |
| 10/2019 - 12/2020 | **High Resolution Weather** Data for the Data Market Austria |
| 05/2019 - 06/2021 | Advanced **Hydrometeorological Services for the Andes** Region |
| 11/2020 - 08/2022 | Development of Advanced Algorithms for the **Downscaling** of Weather Forecasts |
| 10/2021 - 03/2023 | Introduction of **Artificial Intelligence in Satellite**-Related Meteorological Forecasting Procedures |
| 01/2022 - 06/2024 | digital.twin.plant – The Plant and ist **Digital Twin** |
| 05/2021 - 05/2023 | *Micro-Local Weather **Route Recommendation Service** Demonstration Project |
| 08/2024 - 02/2025 | High Resolution Weather Data Including **3d-Viewers** for the Auroral Platform |
| 07/2023 - 06/2025 | Integrated **Hydrometeorological Model Platform** for Sustainable Energy Production and Mining |
| 10/2024 - 03/2026 | Construction of a Global High Resolution Historic Weather and **Climate Data** Retrieval System, Based on MetGIS Downscaling |
| 10/2024 - 02/2025 | Development of **AI based Methods for the Prediction of Cloud** Movement and Shading Effects |

# Scientific papers

Below is a list of some important publications of Spreitzhofer.

After 2015, the research work (see the list of R&D project) has not been published, since this might have restricted the commercial success of the company MetGIS.


1. Spreitzhofer, G. (1997). Application of post-processing tools to improve **visualization** and quality of **numerical short-range predictions** over Central Europe**.** *Meteorol. Appl. 4*, 219-228.
2. Spreitzhofer, G. (1999). Synoptic classification of **severe snowstorms** over Austria. *Meteorol. Zeitschrift* 8, 3-15.
3. Spreitzhofer, G. (1999). Spatial, temporal and intensity characteristics of **heavy snowfall events** over Austria. *Journ. of Theor. and Appl. Clim*. 62, 209-219.
4. Spreitzhofer, G. (2000). On the characteristics of intense **multiple-day snowstorms** affecting the Eastern Alps. *Nat. Hazards* 21, 35-53.
5. Spreitzhofer, G, Lehning, M., Fierz, C. (2004). SN_GUI: A graphical user interface for **snowpack** modeling. *Computers & Geosciences* 30, 809-816.
6. Spreitzhofer, G., Raderschall, N. (2004). Generation of artificial vertical soundings from the aLMo model output to drive a high resolution **snow drift model**. *Meteorol. App.* 11, 311-318.
7. Spreitzhofer, G., Norte, F. (2006). Desarrollo de MetGIS, un sistema combinado de información geografica, meteorológica y de cobertura de nieve de alta resolución, para la **región andina**. *Meteorologica* 31, 99-108.
8. Spreitzhofer, G., Steinacker, R. (2008). MetGIS: High-resolution, web-based graphical weather forecasts for **traffic operation managers**. *Proceedings of the Lakeside Conference (Safety in Mobility) in Klagenfurt, Austria, July 2008.*
9. Spreitzhofer, G. (2008). Customized high-resolution **weather forecasts to support polar tourism**. In: The Vienna Symposium on Polar Tourism. Schriftenreihe des Instituts für Städtebau, Landschaftsarchitektur und Entwerfen, TU Wien, 42-49.
10. Spreitzhofer, G., Steinacker, R. (2010). La combinaison des systemes d'informations meteorologiques et geographiques pour ameliorer la precision des **previsions routieres**. *Proceedings of the 13th International Winter Road Congress in Quebec, Canada, 8–12 February 2010.*
11. Spreitzhofer, G. (2011). MetGIS High Resolution Mountain Weather Forecasts for **Avalanche Warning Services**: Basic Features and Experiences. *Book of Abstracts (CD-ROM) of the 16th Meeting of the European Avalanche Warning Services in Grenoble, France, 15-16 September 2011*.
12. Spreitzhofer, G., Sperka, S. and Steinacker, R. (2013). MetGIS: combination of Meteorological and Geographic Information Systems to produce high resolution **mountain weather forecasts**. *Meteorol. App. 20,* 371-378. URL: http://onlinelibrary.wiley.com/doi/10.1002/met.1299/pdf.
13. Spreitzhofer, G., Sperka, S. (2015). Ultra-high resolution real-time **weather predictions for the Himalayas,** using MetGIS technologies. In: *Proceedings of the International Conference on Climate Change Innovation and Resilience for Sustainable Livelihood, Kathmandu, Nepal, 12-14 January 2015.*
14. Spreitzhofer, G. (2015). Hochdetaillierte Echtzeitvorhersagen für Berggebiete. In: *Mountain Manager, 07/2015 issue*.