



## **MeteoSwiss** Good to know

The Swiss Federal Office for Meteorology and Climatology MeteoSwiss is the Swiss National Weather Service. We record and forecast weather and climate in Switzerland and thus make a sustainable contribution to the well-being of the community and to the benefit of industry, science and the environment. In the Radar, Satellite and Nowcasting division in the regional centre in Locarno-Monti we are looking for a

### **PhD student in radar and satellite data mining**

Your task is to do applied research on the predictability and stochastic simulation of precipitation and thunderstorms using the large archives of weather radar and satellite data available at MeteoSwiss.

The PhD project is part of the research project "Precipitation attractor from radar and satellite data" funded by the Swiss National Science Foundation (SNSF) under the program "Ambizione". Your work will be supervised by Dr. Loris Foresti of the Radar, Satellite and Nowcasting division of MeteoSwiss in Locarno-Monti and Prof. Heini Wernli of the Institute of Atmospheric and Climate Sciences at ETH Zürich.

The overall goal of the project is to develop a new framework to study the predictability of precipitation based on the concepts of strange attractors and analogues and to improve very short-term probabilistic forecasts of precipitation and thunderstorms. You will support the project by studying the spatial and temporal distribution of the predictability of precipitation over complex Alpine orography and develop stochastic techniques for ensemble/probabilistic precipitation nowcasting. The precipitation ensembles will be integrated as inputs into hydrological models for uncertainty quantification, which will involve a visit in the hydrology group of Dr. Massimiliano Zappa at the Swiss Federal Research Institute WSL in Birmensdorf during the third year of the project.

The successful candidate requires a Master degree in atmospheric sciences, applied mathematics/statistics, physics or computer sciences. He/she is interested in developing novel statistical methods to analyse large archives of atmospheric data. Proven experience in computer programming is expected (e.g. Python, R and/or C/C++). Knowledge of stochastic methods, data mining, precipitation observation and weather forecasting would be an asset. Good oral and written skills in English are required.

The Radar, Satellite and Nowcasting division, headed by Dr. Urs Germann, is responsible for the operation of the national weather radar network, the development and operation of applications for very short-term forecasts and alerts (nowcasting), and research and innovation in the field of radar and satellite meteorology and nowcasting. Our main customers are the weather forecasters, civil protection, aviation, hydrology, the public, insurance companies and academia. The team consists of physicists, geographers, engineers, meteorologists and computer scientists and is closely collaborating with the



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**Federal Office of Meteorology and Climatology MeteoSwiss**

Radar, Satellites and Nowcasting

forecasters in Locarno-Monti and many research institutes and weather services around the world. About half of the staff are postdocs, PhD students and trainees working in research projects.

We are looking forward to a talented and motivated PhD student to contribute to this project with research ideas in the field of precipitation science, predictability and forecasting using large remote sensing datasets. We offer a many-sided activity in a dynamic and innovative team and a working place in Locarno-Monti, a beautiful spot in the Southern side of the Alps.

The ideal starting date is 1 April 2016 or by arrangement. Review of applications will begin in November 2015 and continue until the position is filled.

*Please submit your questions or application (CV, motivation letter and contact information of one or two references) by e-mail to Dr. Loris Foresti, project manager in the Radar, Satellite and Nowcasting division (loris.foresti@gmail.com, Phone: +41 79 668 50 24).*