

Radar nowcasting of severe thunderstorms in the Swiss Alps

Severe thunderstorms may lead to severe damages. In the Swiss Alps in the recent years, such storms have directly destroyed railways and roads, have set hydropower production dams out of order for long period of times, and have killed several persons. Although of the utmost importance, forecasting and nowcasting of such events remain challenging tasks. In the framework on an InnoSwiss project, a team of research institutions, consulting firms, hydropower companies, public authorities as well as MeteoSwiss has been built to tackle the question of the impact of storms on hydropower infrastructures.

In the context of the project and in close collaboration with the Radar, Satellite and Nowcasting division of MeteoSwiss, we are starting a new PhD project related to storm nowcasting using radar information, with the following objectives:

1. Investigate the sub-pixel signature of extreme precipitation.
2. Further develop NowPrecip, the nowcasting tool recently set up at MeteoSwiss.
3. Develop a probabilistic data processing chain: ensemble QPE/QPN/runoff, analyzing the influence of the respective components of this chain, as well as uncertainty propagation.

We are looking for a creative and energetic PhD student to investigate the above-mentioned scientific questions, starting as soon as possible. Funding is available at MeteoSwiss for 4 years through an InnoSwiss grant, with a competitive salary (starting at 51 kCHF/year). Review of the applications will continue until the position is filled.

The PhD project will be jointly supervised by Prof. Alexis Berne (EPFL) and Dr. Marco Gabella (MeteoSwiss, Locarno Monti). The PhD student will work in both Lausanne and Locarno, and will closely collaborate with a Postdoc working on a project related to a newly developed QPE approach.

Applicants should have a Master degree in Environmental Sciences/Engineering, Physics, or a closely related field, with a keen interest in hydrometeorology. The project will involve data processing/analysis, and programming skills are expected. Proficiency in spoken/written English is mandatory, knowledge of French, Italian or German would be an advantage. Applications should include a CV, a statement of research interests and qualifications, academic transcripts (BSc and MSc) and contact details of three academic referees in electronic form.

Contact

Alexis Berne
Laboratoire de Télédétection Environnementale
EPFL
Bât. GR, Station 2
CH-1015 Lausanne, Switzerland
alexis.berne@epfl.ch
<https://www.epfl.ch/labs/lte>

Marco Gabella
Radar Satellite and Nowcasting
MeteoSwiss
Via ai Monti 146
Locarno-Monti, CH-6605 Svizzera
marco.gabella@meteoswiss.ch