

Weather Impact

Internship

Downscaling seasonal forecast over Zimbabwe with WRF

Weather Impact specializes in providing weather and climate insights to support smallholder farmers in making informed agricultural decisions. Seasonal forecasts - offering predictions up to six months in advance - are particularly valuable for water-limited farming systems. They help guide critical long-term decisions, such as selecting the most suitable crops for an upcoming season.

However, for these forecasts to be truly beneficial, they must be both accurate and spatially fine enough. Recent studies (Chinyoka et al., 2023) highlight the potential of using the WRF (Weather Research and Forecasting) model to downscale seasonal forecasts, particularly over the SADC region, with a focus on Zimbabwe.

Internship Scope

This internship will focus on downscaling ECMWF's SEAS5 seasonal forecast using the WRF model and assessing the performance of the downscaled forecasts for past rainy seasons. Given the availability of historical data and Weather Impact's interest in Zimbabwe, the study will specifically target this region.

Key responsibilities

- Configure and compile the WRF model to downscale ECMWF seasonal forecasts.
- Generate WRF-downscaled seasonal hindcasts for at least three past rainy seasons (October-June).
- Validate the accuracy of the downscaled forecasts using both reanalysis data and weather station observations.
- If feasible, contribute to designing or implementing a system for operationalizing seasonal forecast downscaling.

This internship offers a unique opportunity to apply atmospheric modelling techniques to real-world agricultural challenges, making seasonal forecasts more actionable for smallholder farmers.

Who are you?

We are looking for a student with excellent study results, who wants to be challenged in data-driven modelling, simulation and optimization. You are following a MSc study of Meteorology, Physics, Technical Geosciences or comparable at an University in the Netherlands.

- You have excellent programming skills (Python)
- You have some experience with WRF or other weather/climate models
- You think independently of creative solutions
- You have good communication and writing skills in English

Weather Impact

Weather Impact is a Dutch company specialized in weather and climate services. We operate worldwide and provide advice and operational services to the agricultural and business sectors. Our innovative tools allow users to assess weather and climate impacts and make effective decisions to reduce risks. We are experts in data management, analytics and algorithms. We also provide training to support local partners in the sustainable continuation of the service. We actively work with NGOs, government organizations and research institutes to support climate adaptation.

What do we offer?

We are a young company with a dedicated team of colleagues, working in an international setting. Our office is located in an historic building near the city centre of Amersfoort and at walking distance from Amersfoort Central Station. You will receive a monthly allowance, we provide all ICT and office facilities needed for the study, as well as excellent coffee!

Interested?

For more information about Weather Impact, please check www.weatherimpact.com. If you have any questions concerning this vacancy, please contact Lorenzo Occelli at +31 (0)33 4753535. To apply, please send a CV, mark list and motivation letter to info@weatherimpact.com.