

Contribution ID: 128

#### Type: not specified

# High resolution data assimilation in the GLORI Project

Wednesday 19 March 2025 11:00 (15 minutes)

The GLORI (Global-to-Regional ICON) project, born from the trilateral collaboration between German, Italian and Swiss institutions, aims to develop a global to regional digital twin based on the prediction capability of the ICON modeling system. One of the main focuses of the project is to improve forecasts, including quantitative precipitation forecasts, at different scales by exploiting the knowledge and capabilities known about high resolution.

The model integration domain encompasses the Italian peninsula and includes areas characterized by complex orography where high resolution is expected to better resolve physical processes and provide more accurate forecasts. The improvement is conditioned by several factors that are concurrently investigated by the different research groups involved in the project. The relevant topics for high resolution are the description of the physical processes, the improvement of the ensemble and the data assimilation.

In this context, this work presents the first step towards high-resolution assimilation by investigating the case study of the flood in Emilia-Romagna last October. The ultimate goal is the direct assimilation at 1 km, which requires a thorough assessment of the entire assimilation chain. Achieving this involves a new evaluation of the thinning and averaging of observations, their localization and the observation error. For this reason, the first step is to analyse and evaluate the behavior of assimilation at 2 km, with nesting at 1 km.

The system and tests results will then be described. Results include QPF verification over forecasts performed both using fractions skill score and dichotomous scores.

VAT

#### Session

Seamless Prediction: Data assimilation integrating nowcasting and new observations

## **Preferred Contribution Type**

**Oral Presentation** 

#### **Presenting Author**

Virginia Poli

## **Email Address of Presenting Author**

vpoli@arpae.it

#### **Affiliation of Presenting Author**

Agenzia ItaliaMeteo / Arpae Emilia-Romagna

# Address of Presenting Author

Viale Aldo Moro 44, 40127 Bologna

Author: POLI, Virginia (Agenzia ItaliaMeteo / Arpae Emilia-Romagna)

**Co-authors:** FERRONE, Alfonso (Arpae Emilia-Romagna); MARSIGLI, Chiara (Agenzia ItaliaMeteo / Arpae Emilia-Romagna); CESARI, Davide (Arpae Emilia-Romagna); MINGUZZI, Enrico (Arpae Emilia-Romagna); AL-BERONI, Pier Paolo (Arpae Emilia-Romagna); GASTALDO, Thomas (Agenzia ItaliaMeteo / Arpae Emilia-Romagna)

Presenter: POLI, Virginia (Agenzia ItaliaMeteo / Arpae Emilia-Romagna)