

The European Weather Radar Network (OPERA)

Iwan Holleman¹ and Laurent Delobbe²

¹Royal Netherlands Meteorological Institute (KNMI), Postbus 201,
3730 AE De Bilt, The Netherlands, iwan.holleman@knmi.nl and

²Royal Meteorological Institute of Belgium (RMI), Av. Circulaire 3,
B-1180 Brussels, Belgium, laurent.delobbe@oma.be

(Dated: April 16, 2007)

I. INTRODUCTION

The OPERA programme (Operational Programme for the Exchange of weather RADar information, www.eumetnet.eu.org) is the Weather Radar programme of EUMETNET, the Network of the European Meteorological Services (NMSs). The objective of OPERA is to harmonize and improve the operational exchange of weather radar information between national meteorological services. The third phase of the OPERA programme is a joint effort of 28 European countries, runs from 2007 till 2011, and is managed by KNMI. OPERA III is designed to firmly establish the Programme as the host of the European Weather Radar Network. This network currently includes close to 160 operational radars, among which some 110 are Doppler radars (Fig. 1).

The first OPERA programme (1999-2003) put emphasis on the specification of the meteorological products to



FIG. 1: Weather radars in OPERA and EUMETNET member countries. The map is based on entries stored at the OPERA public data base in January 2007.

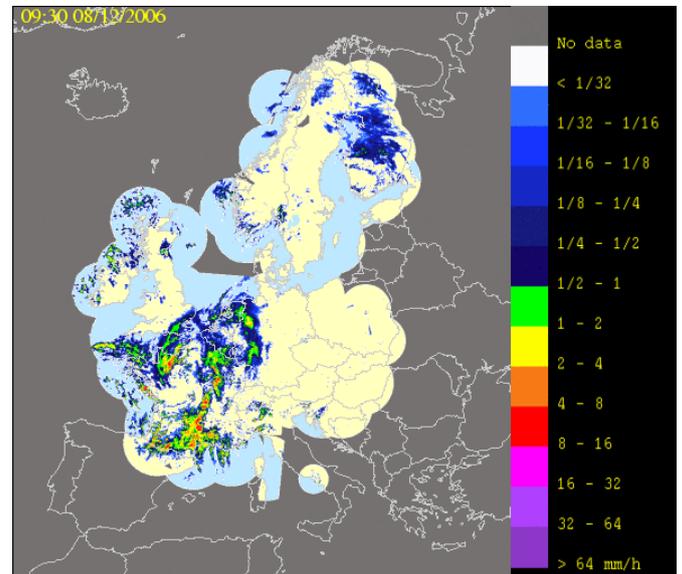


FIG. 2: Example of European composite generated at the OPERA pilot datahub hosted by the UK Met Office.

exchange, to their exchange format, as well as on the software to enable the data exchange. The second OPERA programme (2004-2006) built on these achievements. Its main goal was to increase the exchange and use of the weather radar data in Europe, and to produce a set of recommendations and algorithms for the production of high quality weather radar data, including both wind and precipitation products. A pilot of an European datahub for weather radar data was established at the UK Met Office during this programme (Fig. 2).

II. OBJECTIVES OF OPERA III

The fundamental objective of the third phase of OPERA is to provide a European platform wherein expertise on operationally-oriented weather radar issues is exchanged and holistic management procedures are optimized. With the establishment of its Data Hub, OPERA is now organized to support the application of radar data from the European Weather Radar Network. Another important objective of OPERA is to act to harmonize data and product exchange at the European level.

III. MAIN TASKS

The new OPERA programme will focus on the operational generation and quality control of an European weather radar composite, exchange of three-dimensional radar reflectivity and wind data, exchange of quality information, and availability of radar data for official duties of NMSs and research. More specifically, the following tasks are planned :

1. To maintain an inventory on European weather radars, their characteristics, their data, and products derived from them.
2. To elaborate previous work devoted to understanding and describing radar data quality, in support of their increased quantitative use.
3. To actively provide a forum wherein data providers and users together will define how best to optimize data management procedures.
4. To stimulate the increased exchange and harmonization of weather radar data and products throughout Europe.
5. To support European applications of weather radar data through the establishment of a Data Hub function where harmonized products from the European Weather Radar Network are generated and managed.
6. To investigate and evaluate new radar technology and its relevance to operational requirements for present and future radar systems and products.
7. To provide a forum for information exchange to assist the national protection of radar sites and frequency bands.
8. To maintain support for operational encoding and decoding of radar data and products.
9. To liaise with international organizations (WMO, COST, EUCOS and other EUMETNET Programmes, EUMETSAT, ESA).
10. To inform the meteorological, hydrological, and other operational user communities of its activities.

IV. CONCLUDING REMARKS

Severe storm experts and forecasters are undoubtedly intensive users of weather radar observations and are as such highly concerned by the advances in operational radar meteorology at European level. Operational requirements formulated by the user communities are essential for the radar data providers to increase the quality of their radar data and products. Therefore, the promotion of regular contacts between radar data providers and user communities is one the objectives of the third OPERA programme. More information on the programme can be found on the OPERA website <http://www.knmi.nl/opera>.

V. ACKNOWLEDGMENTS

The authors are indebted to all participants of the OPERA programme who provided material which has been used in this contribution.