www.bsc.es

Barcelona, 3 June 2015

Barcelona Supercomputing Center
Centro Nacional de Supercomputación

EARTH SCIENCE SERVICES

SMOS Barcelona Expert Centre (BEC) synergies

Isadora Christel Jiménez
Services – Earth Science Department

Earth Sciences Services

Barcelona Supercomputing Center
Centro Nacional de Supercomputación
EXCELENCIA SEVERO OCHOA

OUR OBJECTIVE:

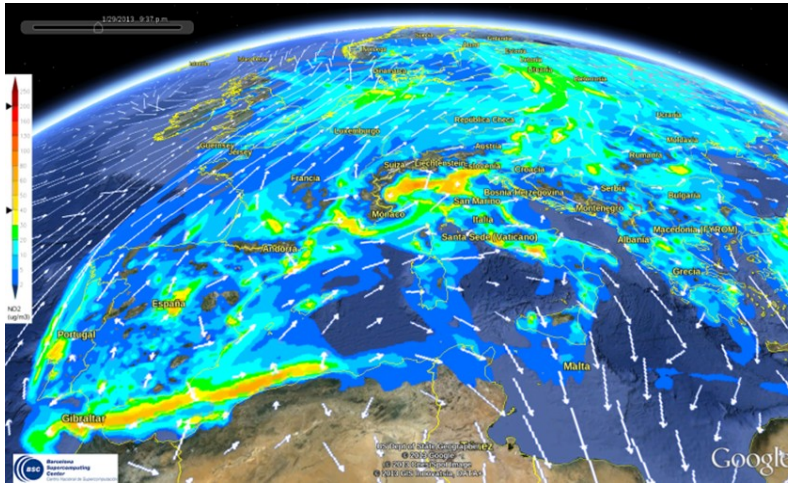
Facilitate technology transfer of state-of-the-art research from local, national to international levels in five areas:

- Air quality assessments
- Mineral Dust modelling
- Weather forecasting
- Climate predictions
- Computational Earth Services

Air Quality Services

Air quality forecast system: CALIOPE

Provides air quality related information for the coming days and for the application of short term action plans for air quality managers.



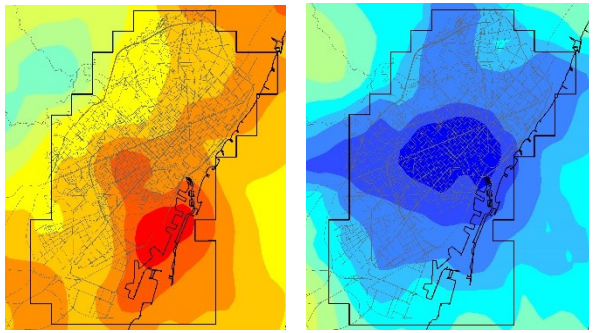
Information is delivered using both online or custom applications:

ANDROID APP ON Google play

Available on the App Store

Air quality impact assessment

Air quality modelling provides comprehensive description of air quality problems by relating emission sources and atmospheric conditions



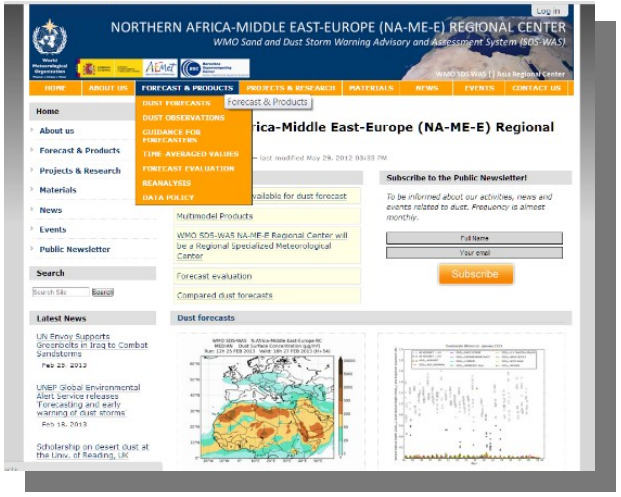
Left: NO_2 maximum h values in Barcelona (red >200 µg/m³)
Right: Reductions due to fleet electrification (blue >25 µg/m³)

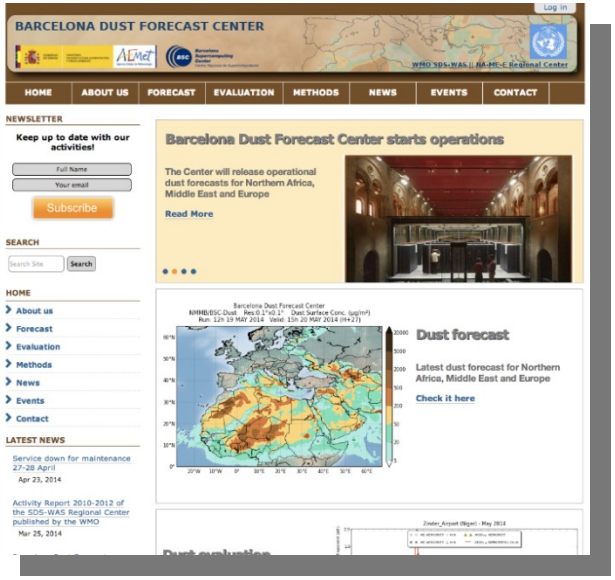
Mineral Dust Services

Mineral dust forecasts SDS-WAS

North Africa, Middle East and Europe Regional Center

Early warning system
http://sds-was.aemet.es started in 2010



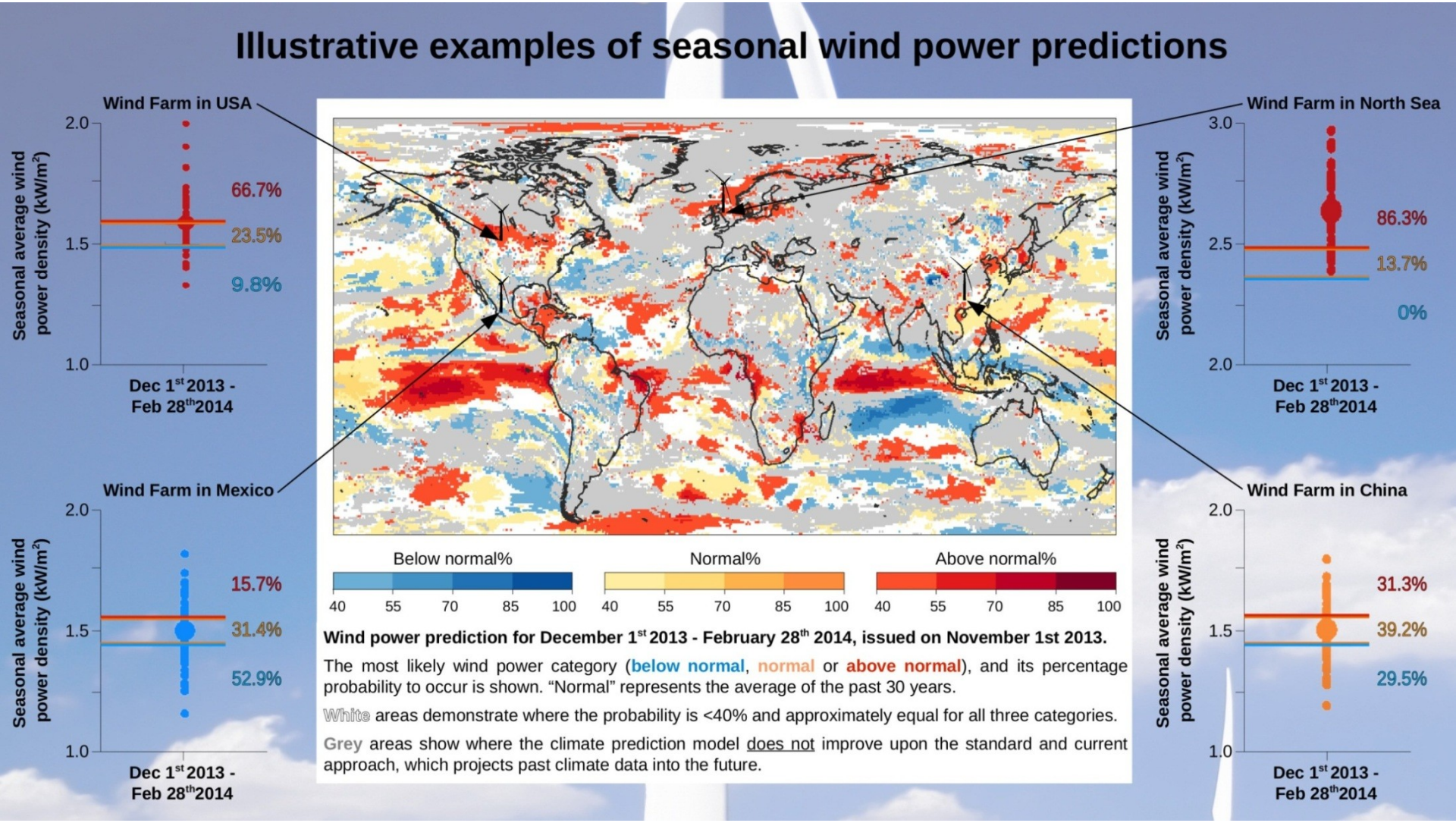


Barcelona Dust Forecast Center

First specialized WMO Center for mineral dust prediction
http://dust.aemet.es started in 2014

GOBIERNO DE ESPAÑA
MINISTERIO DE MEDIO AMBIENTE Y MEDIO RURAL Y MARINO
AEMet Agencia Estatal de Meteorología

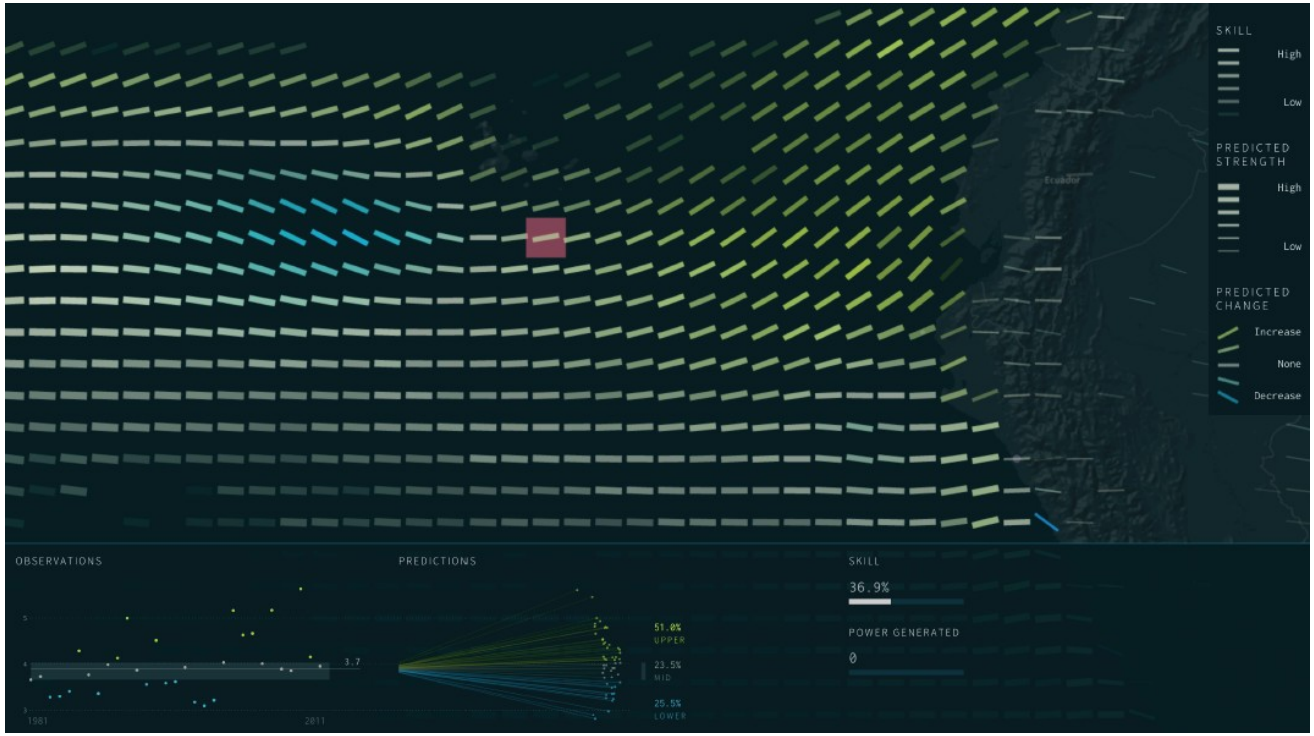
Climate prediction services



Climate prediction services

Barcelona Supercomputing Center
Centro Nacional de Supercomputación

EXCELENCIA SEVERO OCHOA



EUPORIAS

SPECS

VORTEX

EnBW

eDF

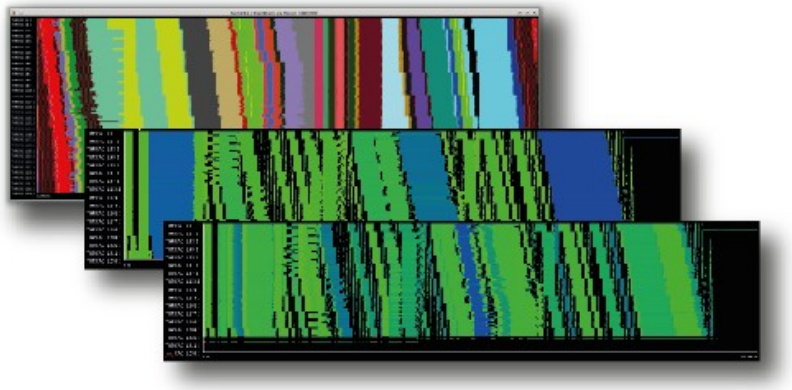
edp renewables

ALSTOM

Computational Earth Services

Products

- Performance analysis of Earth Sciences applications
- Development of HPC user-friendly software framework for Earth system modeling and the management of operational systems
- Provision of data services for Earth Sciences



Applications

- Analyze Earth models codes to identify issues and propose improvements
- Port codes to power efficient architectures
- Develop, deploy and maintain software infrastructure for the management, dissemination, and analysis of model output and observational data

SEEVCCC

is-enes

EC EARTH

ESiWACE

Turkish State Meteorological Service

www.bsc.es

Thank you!

For further information please contact
isadora.jimenez@bsc.es