



METEOROLOGY

Expert in the field of atmospheric modelling, NUMTECH has been providing meteorological calculation systems for more than 15 years. Our team carries out studies and expertise services to characterize the meteorology in complex areas, reconstitute wind fields or support our clients in their own implementation of forecasting systems. Besides, our models allow us to provide a wide range of meteorological data at various scales, resolutions or treatment levels.

NUMTECH and meteorology

- 2001: First French meteorological calculation chain installed on cluster.
- 2003: Meteorological forecasting at very thin scale for the crew AREVA challenge (America's Cup).
- 2005: First implementation of a meteorological system at very high resolution on a French refinery (pilot site of the TOTAL refinery in Donges).
- 2009: Development of calculation means and weather forecast for France and Europe (resolution of 5 and 15 km).
Adaptation for agricultural world (CAP2020).
- 2010: Implementation of a weather forecasting operational system for National Angolan Meteorology.
Provision of fine-scale weather forecasts for the local rugby team (ASM) at the Marcel Michelin stadium in Clermont-Ferrand .
- 2011: Analyses and weather forecasts for France and Europe at a resolution of 3 and 12 km.
Assimilation of meteorological data to improve forecasts.
- 2012: Collaboration with the company WEATHER MEASURES for the implementation of observations systems, particularly radar.
Launch of our product DAD, first French database to drive atmospheric dispersion models.
- 2013: Research project DRUMS with the LISA and the LMD by integrating a part of the online coupling between WRF and Chimère.
- 2015: Extension of the Europe grid towards East.

Meteorological data production

- Provision of daily meteorological bulletins (7 days a week), achieved by experts in meteorology.
- Hourly forecasts, updated twice a week, at a resolution of 3 km and for 4 days for France, and at a resolution of 12 km and for 7 days for Europe. Local forecasts at high resolution (km or lower) on request.
- Provision of basic (wind, temperature, humidity, rainfall) and specific (boundary layer height, stability, evapotranspiration, wind gust, etc.) meteorological data.
- Seasonal climate or monthly data on a specific area from averaged meteorological simulation results over several years.
- Forecasts and weather warnings for extreme events.
- "Meteorological zooms" for the events sector.
- Statistical data over long meteorological periods (up to 16 years) for Europe (world on request).

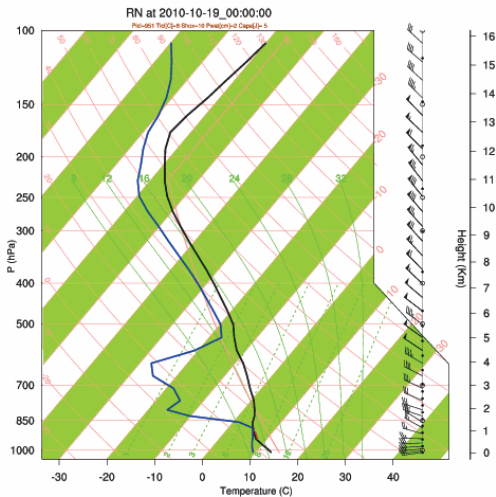


Studies and expertise

- Assessment of meteorological fields in complex terrain (relief, valley bottom, presence of obstacles, etc.).
- Reconstitution of 3D meteorological fields by our experts: wind profiles, altitude shear, temperature inversions, stability, etc.
- Meteorological characterization of a specific area.
- Expertise of existing weather forecasting systems: configuration of models, assimilation of observed data provided by the customer; consideration of the environmental context, aid for the coupling with other models (hydrology, oceanography, etc.).
- Training for the use of numerical forecasting systems.

Operational systems

- Development and implementation of weather forecasting operational systems.
- Integration of meteorological data in customers' operational systems.
- Provision of latest state-of-the-art equipment designed for the meteorological calculation.



Our strengths

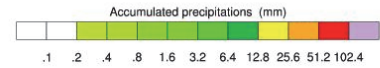
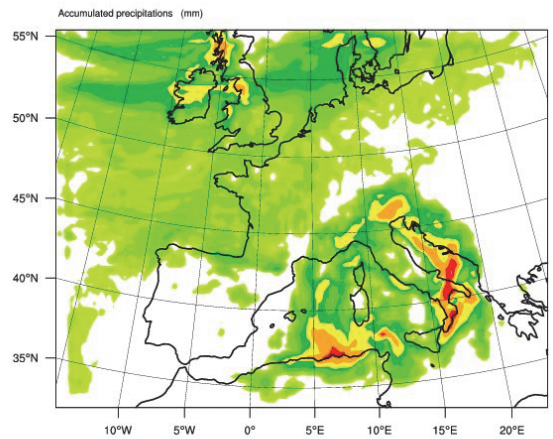
- Based on the latest advancements in the field of weather numerical modelling, NUMTECH develops and implements the NWFS system ("NUMTECH Weather Forecasting System") to provide daily high-resolution forecasts across Europe. This system can be quickly deployed worldwide.
- Experience and references in the field.
- Spatial and temporal resolution for the calculations.
- Quality and reliability of the data.
- Meteorologists' support and expertise.
- Business approach.

NUMTECH
L'ATMOMODÉLISATION

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Forecast of accumulated precipitations over the entire forecasting cycle across Europe.

Calculation means

- International prognostic and diagnostic models (WRF, RAMS, CALMET, FLOWSTAR).
- Latest generation of calculation clusters (500 Cores INTEL, i.e. more than 5 teraflops of processing power) installed in secure premises.
- Relocation of our backup systems.

Lines of business

- Air quality.
- Defence.
- Industry.
- Agriculture/green areas.
- Wind energy.
- Transport.
- Local authorities.
- Events sector.

Reliability and quality of service

- Guaranteed level of availability.
- Secure transfer.
- Delocalized emergency forecast centre.
- Assimilation of observed data (local, radar, satellite) available.

