



Take your forecasts to a higher level
of detail

NWP
accessible
to everyone

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OVERVIEW



Numeric Weather is a turnkey solution for limited-area meteorological prediction models, consisting of both a high performance computing hardware & modelling software tuned and configured for operational use.



HIGH PERFORMANCE COMPUTING HARDWARE

Design & implementation of a hardware system optimized for specific application. Offered systems range from basic off-the-shelf PC clusters to high performance computing (HPC) clusters based on Linux OS and high-speed InfiniBand® interconnect.



DESIGNING COST-EFFECTIVE SYSTEM

To maximize price/performance ratio of modelling solution, detailed analysis is carried out first to determine the amount of computing power necessary to fulfill modelling goals. Our specialists understand architecture of HPC systems, their limits & performance in real modelling applications. The analysis is based on our expert knowledge of hardware scalability, modelling software scalability, dimensions of modelling domain, its temporal and spatial resolution. This allows proposing the solution with optimal performance that fits well user's needs.



RELIABLE PERFORMANCE

System includes monitoring & diagnostic tools with easy-to-use interface to instantly identify any possible issues. Moreover IBL provides service to assist with administration or undertake the maintenance completely.



NUMERIC WEATHER SCHEDULER

Software framework developed by IBL for operating local model suites, bringing high flexibility, extensibility & robustness.

- ⌘ Designed for both operational production & research
- ⌘ Running models with minimum technical knowledge
- ⌘ Web-based monitoring, with unified user interface for all models
- ⌘ Easy failure recovery
- ⌘ Support for ensemble prediction systems
- ⌘ Support for multi-user environments

IBL SERVICES

- ⌘ Estimation of computing power
- ⌘ Hardware delivery & integration
- ⌘ Guidance with infrastructure
- ⌘ Assistance with license agreements & negotiations
- ⌘ Customisation of forecast production
- ⌘ Training, commissioning, support

KEY STRENGTHS

- ⌘ High system integration level
- ⌘ Hardware designed & tuned to meet desired model performance
- ⌘ Fast interconnect InfiniBand®
- ⌘ Installed as ready-to-run
- ⌘ Comprehensive scheduler with web management & monitoring
- ⌘ Technical support for the hardware



DATA ASSIMILATION & MODEL EVALUATION

System orchestrates model data assimilation scheme through unified software framework for observational data acquisition, processing & format conversion for all models, including long-term database storage.

Archiving of output model forecast fields is also provided on both operational archive and case-studies, alongside with extraction of point-based data. It also enables verification & statistical evaluation of forecast.



RANGE OF PREDICTION MODELS

- ⌘ Numerical Weather Prediction atmospheric models COSMO, WRF for short & medium range forecast in high-resolution (down to 1 km incl. nested domains)
- ⌘ Climatological models COSMO-CLM, PRECIS for climate scenarios on the range of decades
- ⌘ Ocean wave models WaveWatch III, WAM for shipping, oil rigs & towing, rescue operations
- ⌘ Atmospheric chemistry, aerosols dynamics and dispersion models COSMO-ART, WRF-Chem for pollutant propagation & deposition, sea salt, sandstorm predictions

FEATURES

- ⌘ High resolution short term forecasting, incl. ensemble
- ⌘ Data assimilation
- ⌘ Weather & wave modelling, dust/sand and gas dispersion
- ⌘ Flexible monitoring & powerful NWP scheduler
- ⌘ Model skill evaluation suite



ENSEMBLE PREDICTION

While traditional deterministic models provide a single vision of future development, there is no information on probability of this particular forecast. Ensemble prediction systems address likelihood of the event through analysing the instability of initial conditions.

Design & implementation of custom ensemble predictions system (EPS) for operational forecasting. EPS can be based on multi-model or multi-boundary approach, perturbed physics and their combinations.

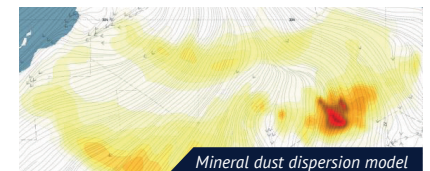
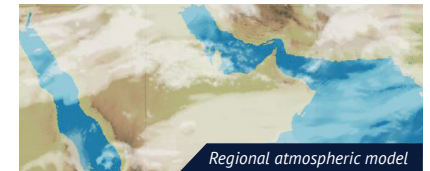
KEY STRENGTHS

- ⌘ Integration of observing instruments in region
- ⌘ Choice of boundary conditions from different global models
- ⌘ Powerful data visualization and post processing in Visual Weather
- ⌘ Probabilistic forecasting using Ensemble Prediction System



NOWCASTING & VERY SHORT RANGE FORECASTING

System can utilize wide range of assimilated high-resolution observations to execute model with rapid update cycle for very short range forecast of sudden occurrence of severe weather events over local area. Consequently this can provide not only radar & satellite extrapolated forecast, but also Diagnostics & Decision Support tools for identifying severe events leading to life & property saving actions or to provide valuable information for energy & transport industry.





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IBL Software Engineering builds its reputation on 40 years of tradition in the field of Meteorological IT development. Dating from its first Automated Meteorological Message Switching Systems, the branch in Frankfurt, Germany was established in 1988, while the branch in Bratislava, Slovakia was opened in 1997. IBL Software Engineering is employing IT specialists working exclusively in the Meteorological IT Environment with a high level of professional expertise.

IBL Software Engineering is ISO 9001:2015 certified in the scope of development, supplying, installation, and maintenance of software for meteorological information systems.

IBL Software Engineering is aware of the ongoing changes declared by WMO and ICAO. As a representative of Hydro-Meteorological Equipment Industry it is recognized by WMO and IBL's experts are participating in the number of WMO Expert Teams, while paying close attention to the advancements in BUFR, IWXXM, GRIB3, Amendment 80, etc.

PRODUCT PORTFOLIO

If the integration of all meteorological data processing systems is the key factor for the effective operation of your business, then with the IBL product portfolio your integration efforts are minimized, because IBL systems are designed to closely cooperate to provide the desired synergy.

No
meteorological
office is an
island, entire
of itself.

