METplus Implementation: Key Differences

The next generation of numerical models at the Met Office will move away from a traditional latitude longitude based grid and onto the cube sphere grid.

MET / METplus is a system developed by NCAR, USA and chosen to replace VER. Testing of MET and VER underway to replicate current capabilities.

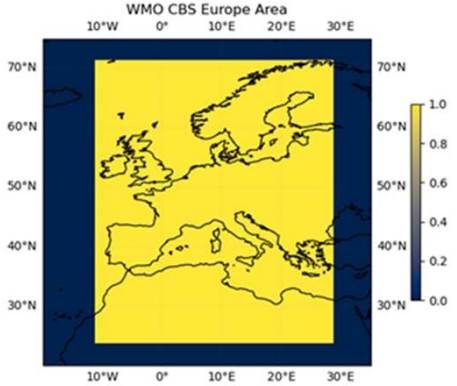
Focus here will be on results featured in the METplus Implementation: Grid-Stat & GenVxMask Poster

VER

MET
Model Evaluation Tools

Method:

- Forecast and Analysis from Unified Model (Global)
- Area Mask applied over Europe
- Geopotential Heights at 850hPa considered
- Interpolation from UM grid to 2.5 degree grid using the nearest neighbour interpolation method.
- Grid-Stat = gridded verification



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METplus Implementation: Key Differences

Computational Precision

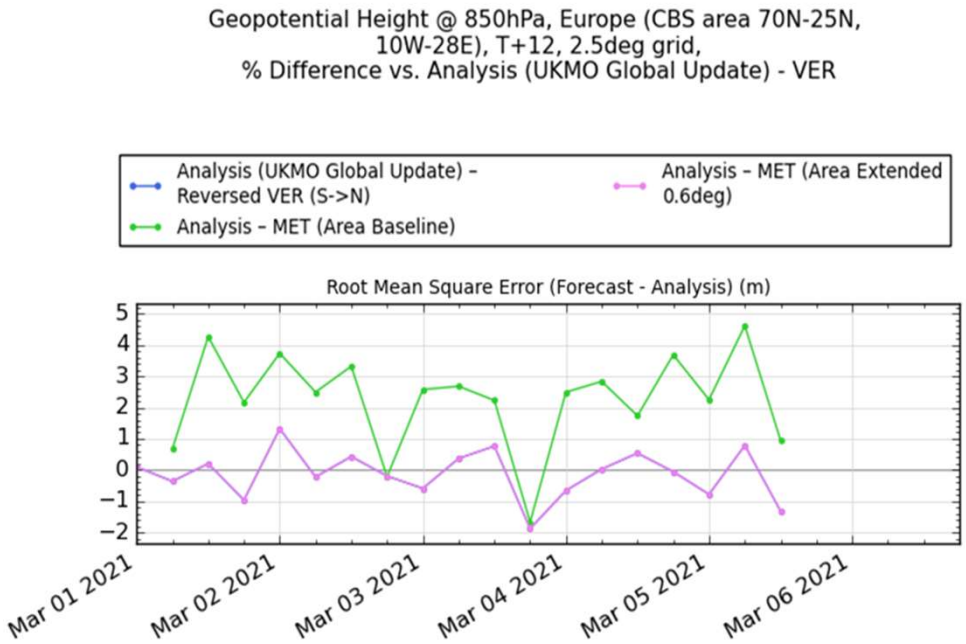
VER and MET have different grid point totals in area masks from the same coordinates.

Extension of Areas applied.

Opposing Orders of Processing

VER : N → S MET : S → N

Model Evaluation Tools



Questions for operational implementation?

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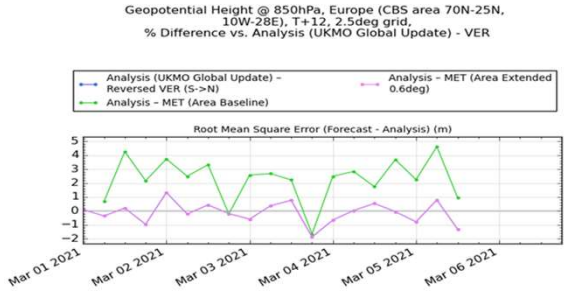
METplus Implementation: Key Differences

VER timeseries of over 20 years of verification scores!



To extend or not to extend the WMO CBS areas? That is the question for METplus implementation.

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Thank you to co-authors: Rob Darvell, Marion Mittermaier, Rachel North


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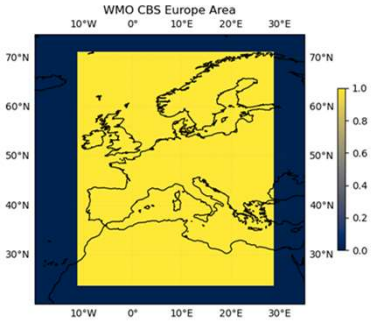
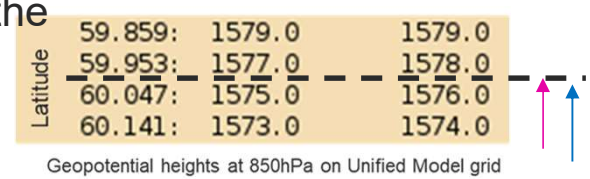
METplus Implementation: Grid-Stat & GenVxMask

Method: Geopotential heights at 850 hPa from the UM were verified on 1.5 & 2.5 degree grids. Re-gridding was done using the nearest neighbour interpolation method.

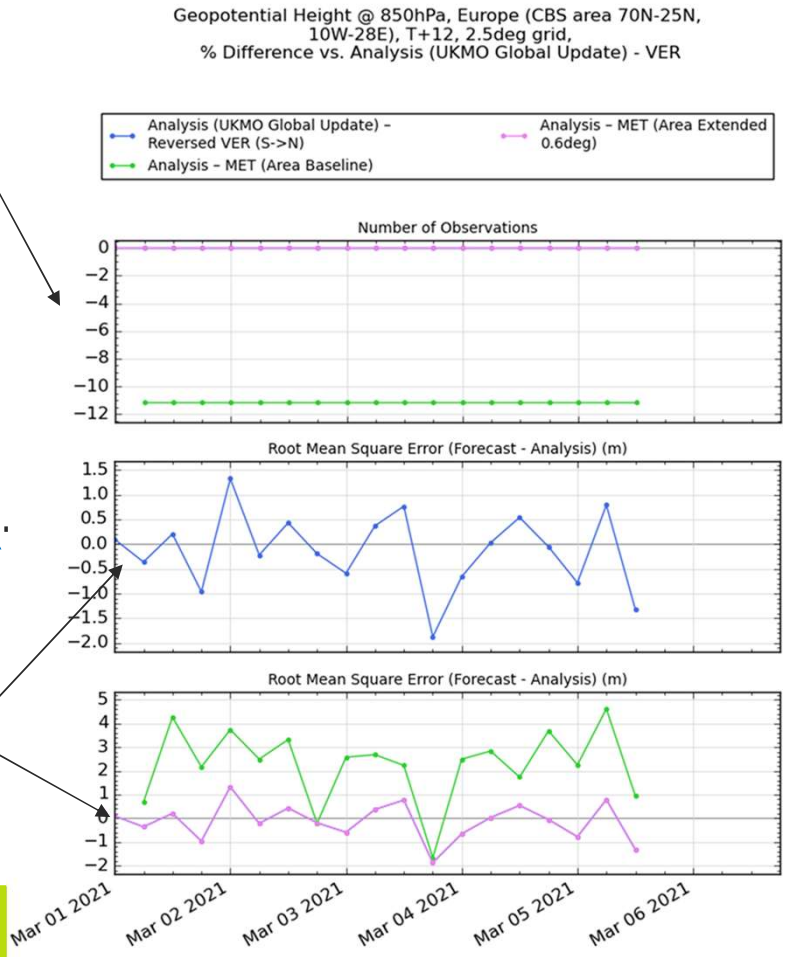
Number of Grid Points
Masks generated using MET contained few grid points than those in VER from the same coordinates.

Opposing Orders of Processing





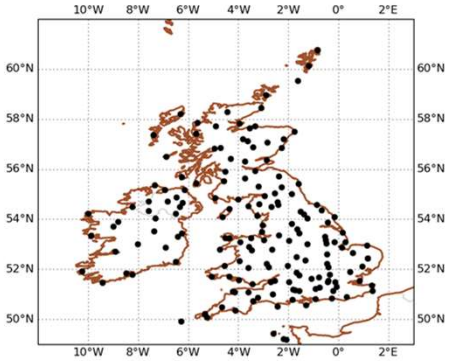
Geopotential heights at 850hPa on Unified Model grid

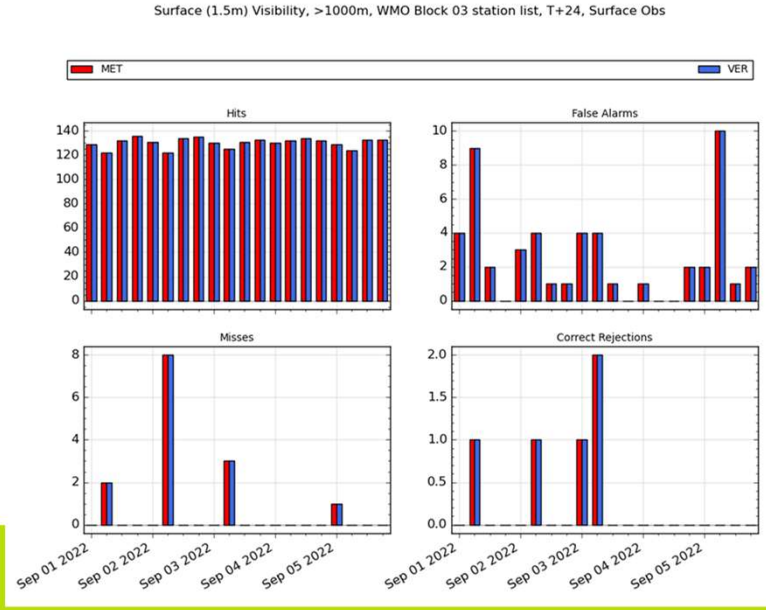


METplus Implementation: Categorical Statistics

Aim: Replicate the station based verification of the Met Office's operational verification system (VER) using MET.

Method: Visibilities from the UM were verified against WMO Block 03 stations. Re-gridding was done using the nearest neighbour interpolation method.





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METplus Implementation Posters Summary

- The next generation of numerical models at the Met Office will move away from a traditional latitude longitude based grid and onto the cube sphere grid.
- This change would require significant re-development of the operational verification system (VER). MET / METplus is a system developed by NCAR, USA and chosen to replace VER.
- Rigorous testing of MET and comparisons with VER to ensure that verification results are as correct and robust as possible.
- First steps – reconciling the old with the new.
- Posters of results from 2 operational capabilities of VER being replicated by MET.