ΕΘΝΙΚΗ
ΜΕΤΕΩΡΟΛΟΓΙΚΗ
ΥΠΗΡΕΣΙΑ
HELLENIC NATIONAL METEOROLOGICAL SERVICE

ICON-GR (2.5km)

- **Status of ICON-GR and Verification Software**
- **Verification for DJF21 and JJA21 for Greek domain**

STATUS of ICON-GR and Verification Software

❑ ICON-GR Version 2.4.0 was used till mid April. The new version 2.6.2.2 (bug fix) is now used.

❑ MEC and Rdbfk software have been successfully installed in ecmwf machines

❑ MEC is used for ICON-GR data for Common Plots only (It will also be used for Greek domain soon)

❑ MEC can NOT be used for COSMO-GR Common Plots as there are not upper air output data available for this area.

❑ VERSUS package is still used for the Greek domain.

❑ A software for data reformatting from VERSUS output to Rdata (used in shiny server) was created, so that data from VERSUS and MEC (from different countries) can be compared.

❑ Verification results for DJF20-21 (old version) and JJA21(new version) are presented.

WINTER 2020-2021 Greek domain (with VERSION 2.4.0)
COSMO-GR4, ICON-GR2.5, ECMWF-IFS, COSMO-GR1
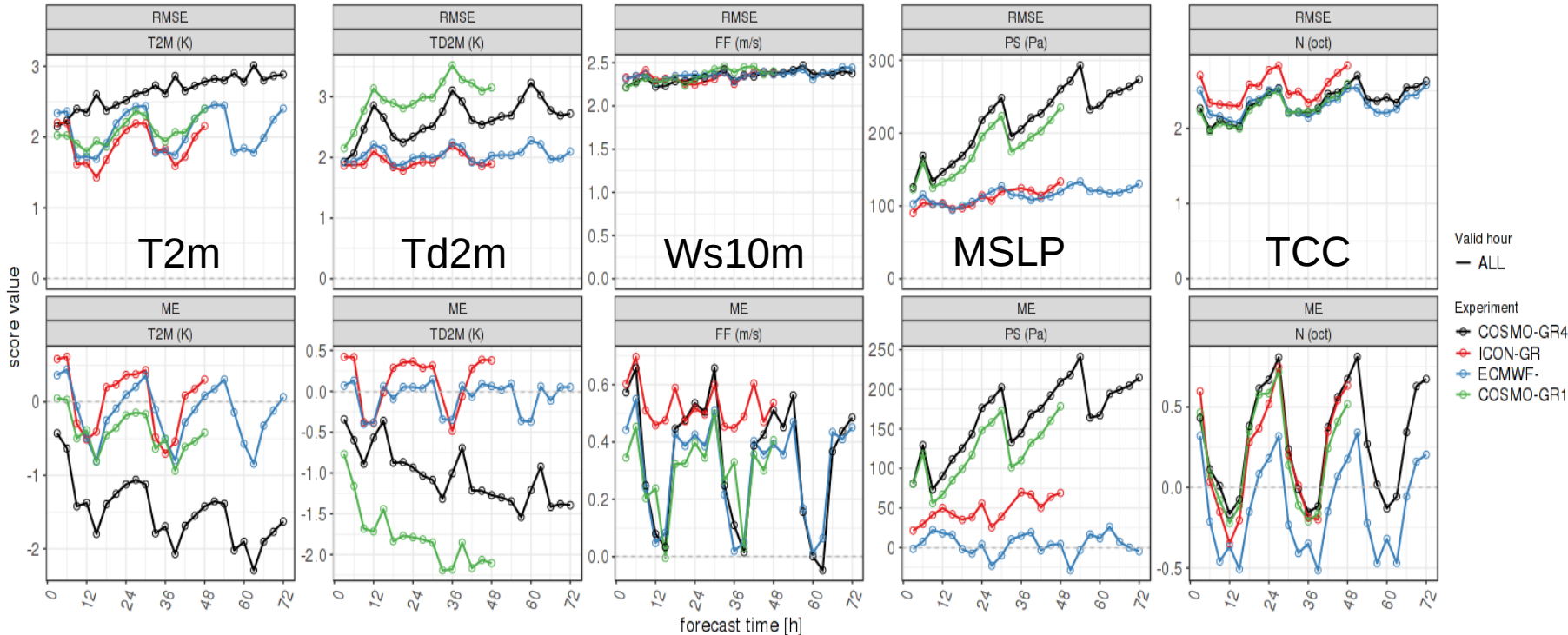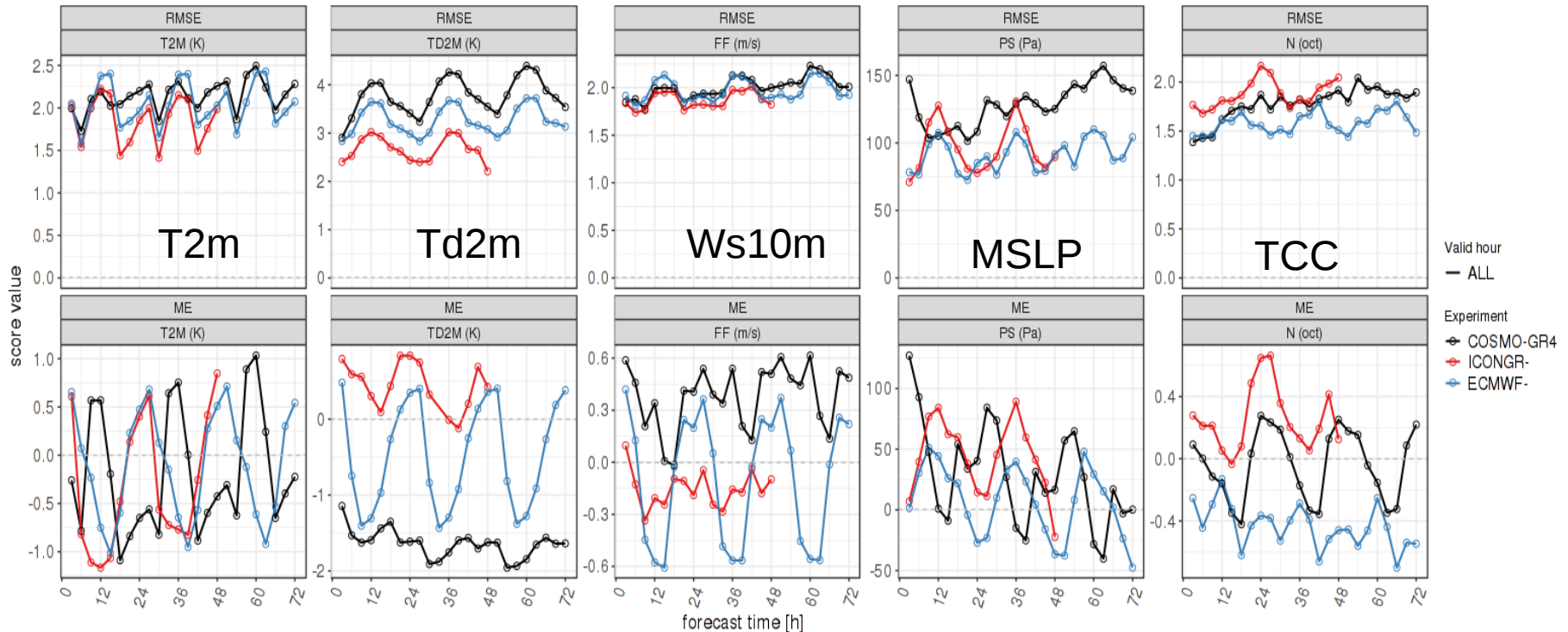
- **RMSE** : ICON-GR performs better than COSMO-GR4 models for T2m, Td2m, MSLP (values close to ECMWF) but ICON-GR RMSE is slightly higher for TCC.

- **ME** : ICON-GR Diurnal cycle for T2m, Td2m and better performance than COSMO models which constantly underestimate. Slight overestimation of Ws10m. Slight Overestimation of MSLP (less than COSMO models). TCC diurnal cycle similar to COSMO models.

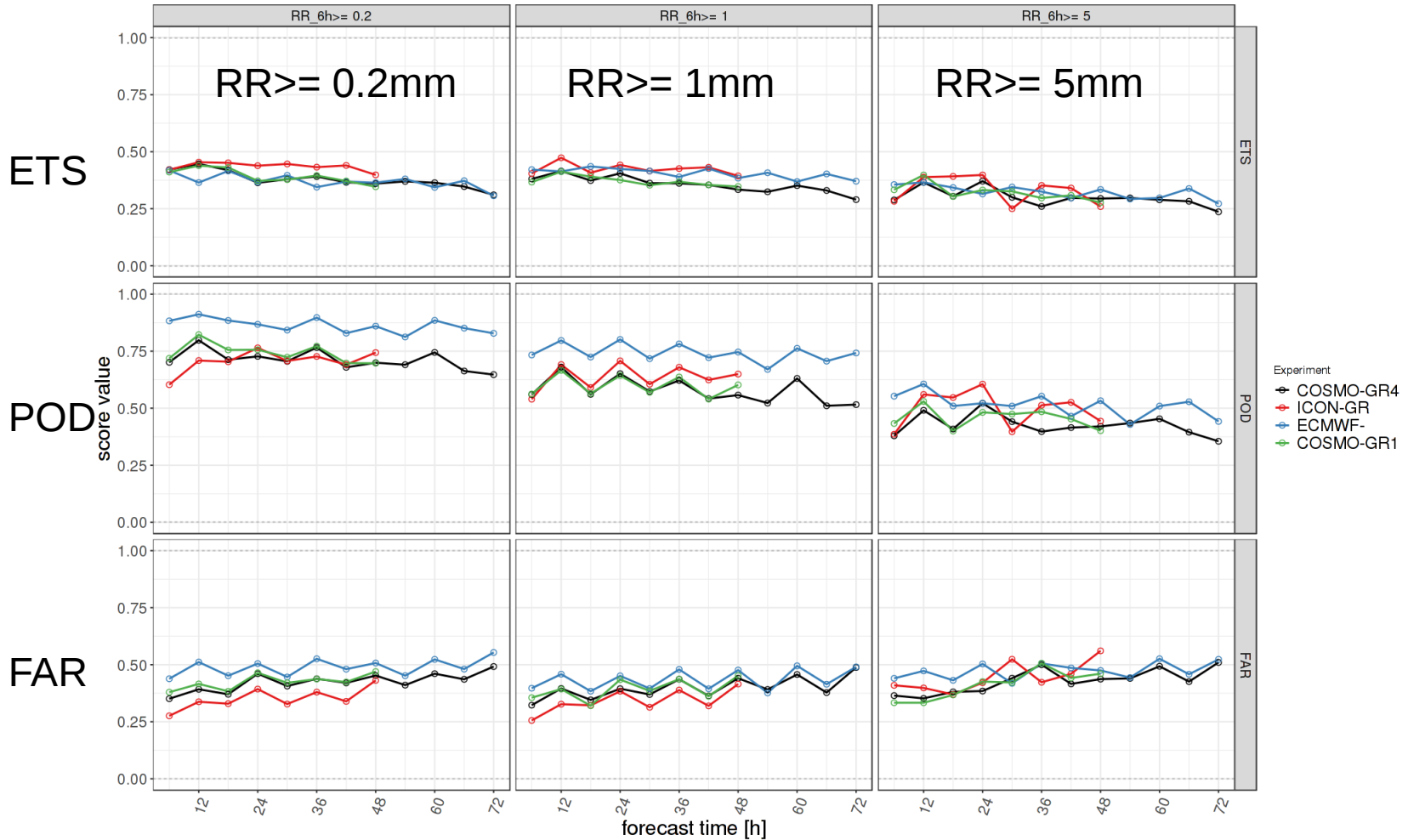# SUMMER-2021 Greek domain (with VERSION 2.6.2.2)
COSMO-GR4. ICON-GR2.5.ECMWF-IFS

- **RMSE** : ICON-GR performs better than COSMO-GR4 for T2m, Td2m, Ws10m, MSLP (values close to ECMWF) but ICON-GR RMSE is slightly higher for TCC.

- **ME** : ICON-GR Diurnal cycles for T2m, Td2m, Ws10m differ from COSMO-GR4 (T2m consistent with ECMWF with nighttime overestimation). ICON-GR overestimation of Td2m, slight underestimation of Ws10m (abs ME value lower than COSMO). ICON-GR TCC nighttime overestimation.

PRECI (6h) WINTER 2020-2021 Greek domain (with VERSION 2.4.0)
COSMO-GR4, ICON-GR2.5, ECMWF-IFS, COSMO-GR1
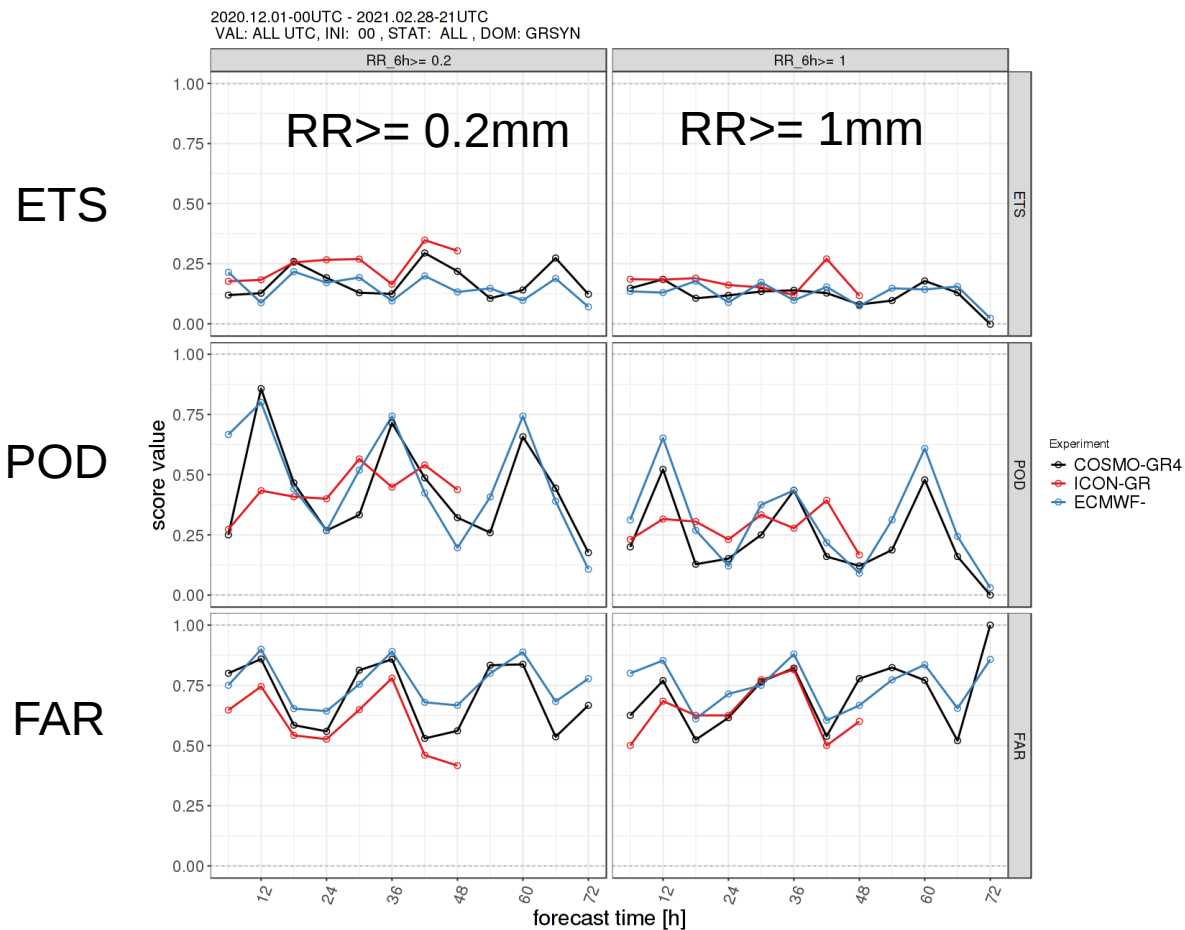

ETS good for ICON-GR(slightly higher than other models)
POD for ICON-GR comparable to COSMO-GR4
but FAR is lower especially for low thresholds (less false alarms)

PRECI (6h) SUMMER-2021 Greek domain (with VERSION 2.6.2.2)
COSMO-GR4, ICON-GR2.5, ECMWF-IFS

ETS good for ICON-GR(slightly higher than other models)
POD for ICON-GR is lower but FAR is also lower (less false alarms)
especially for lower thresholds.

Conclusions on Verification

- Results for DJF20-21 with v2.4.0 and JJA21 with v2.6.2.2 are presented

- RMSE scores are better for ICON-GR for both seasons except for TCC.

- There are bias differences between COSMO and ICON-GR mainly for T2m, Td2m and Ws10m.

- ICON-GR 2mT and Td2m is overestimated at night for both seasons.

- ICON-GR Wind speed 10m is overestimated in DJF and underestimated in JJA

- Precipitation scores are better for ICON-GR (but POD is lower in JJA season).

- Common Plots results will be presented next week