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Institut Ochrony Środowiska  
Państwowy Instytut Badawczy

# Experiences with the Deltatool for forecast and feedbacks, IEP-NRI, Poland

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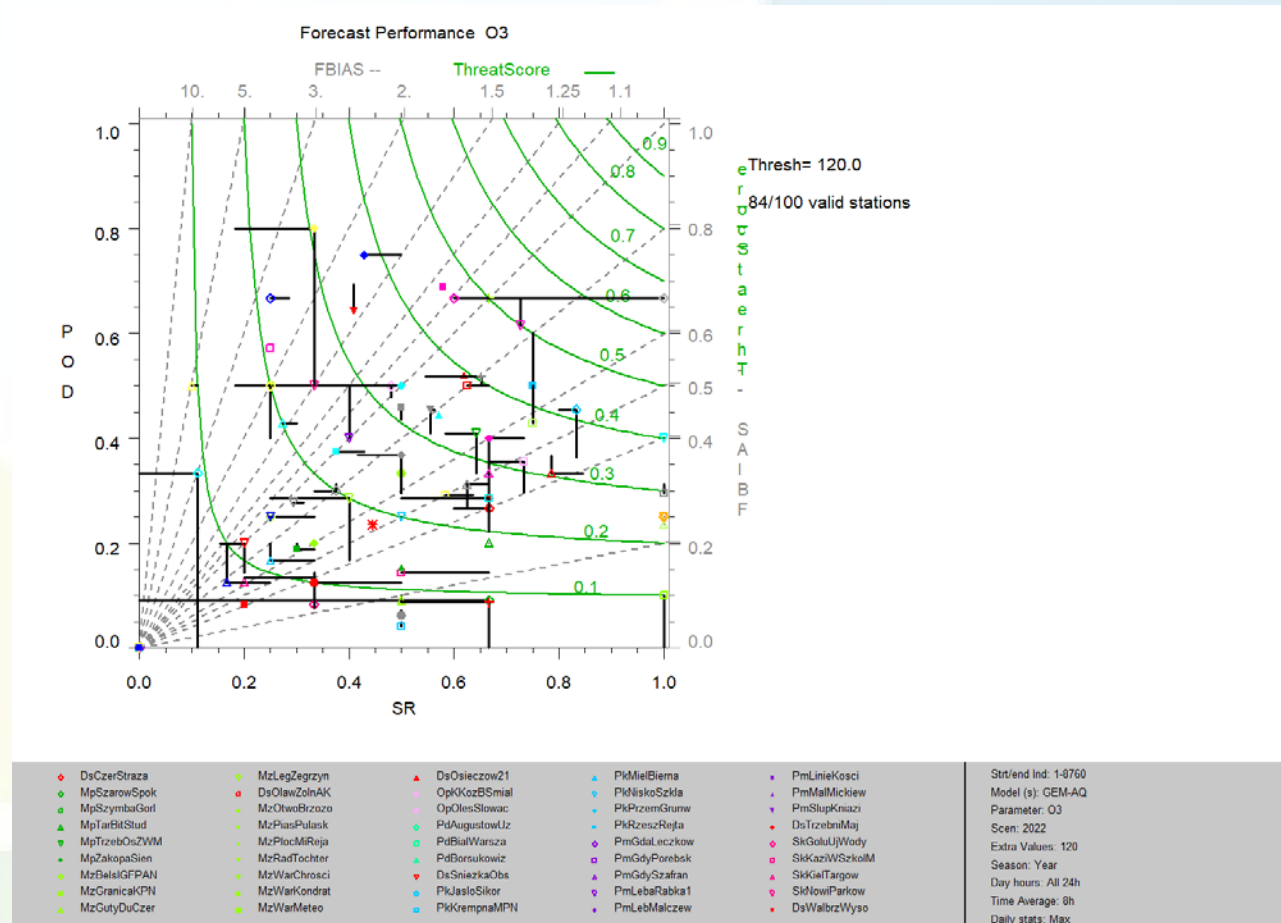
05.10.2023



# Practical use of Deltatool application for forecast



- Mainly internal – identification of problematic regions, stations with worst/best scores
- Contribution to Fairmode discussion, development of unified tool and methods
- For now it could be too early to use delta tool in forecast mode in reporting





# Plots – tests and analysis - internal

Useful and understandable:

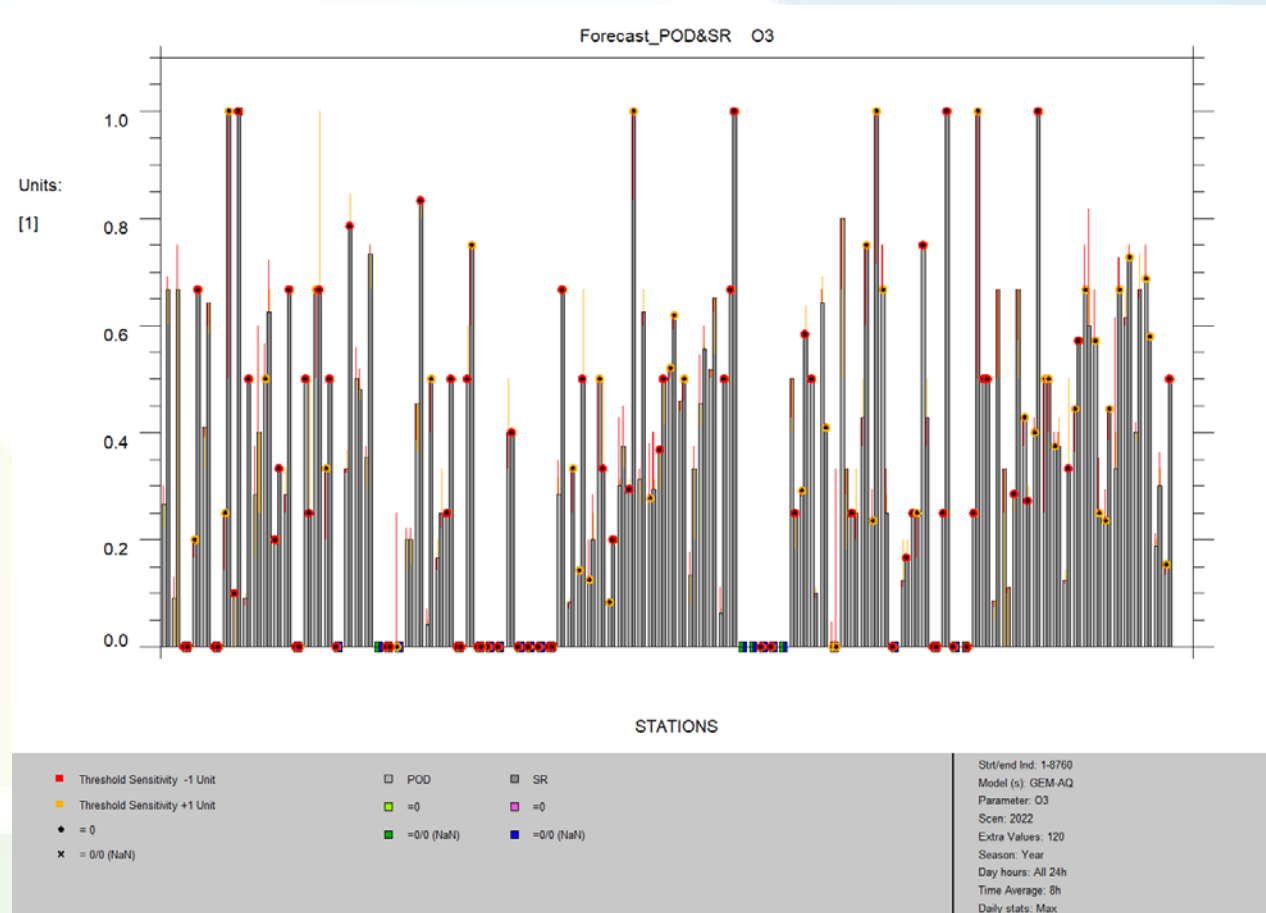
- Barplots for forecast – POD, SR
- Target, MPI
- Summary plot and csv file

Useful but hard to explain:

- Forecast performance, normalized performance

Less useful, still interesting:

- Barplot Accuracy
- Forecast AQI





# Stakeholders usefulness

Understandable:

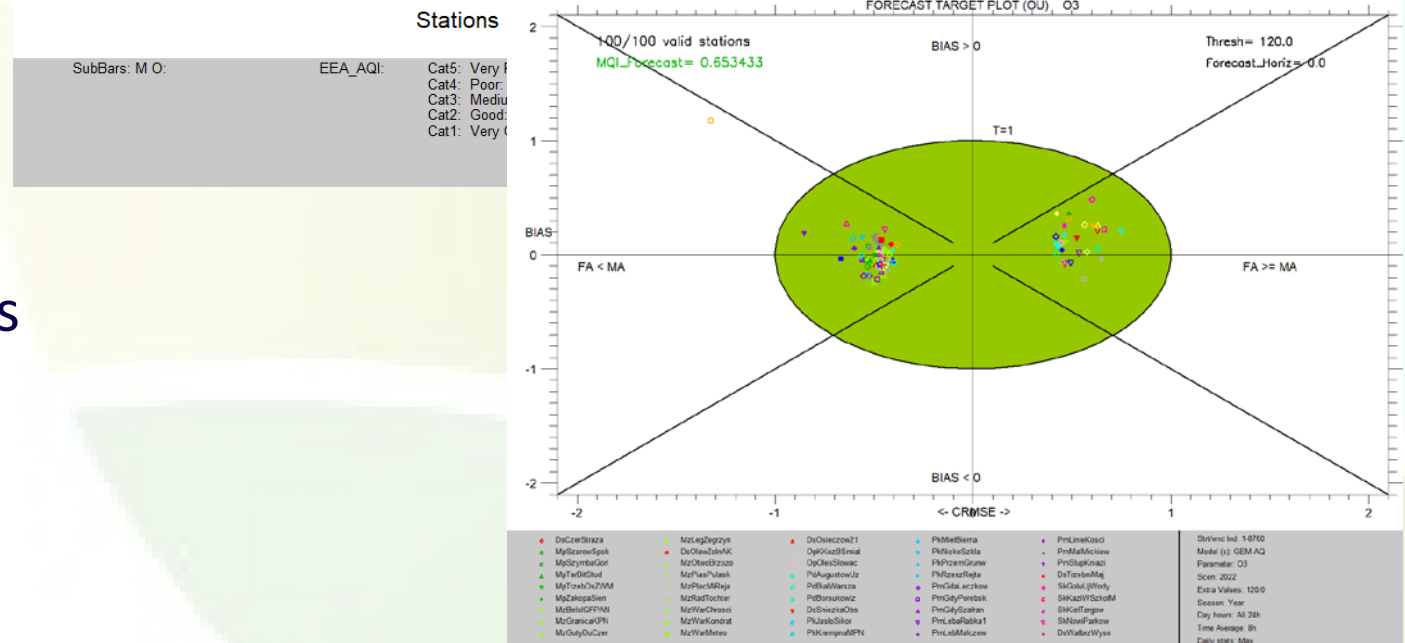
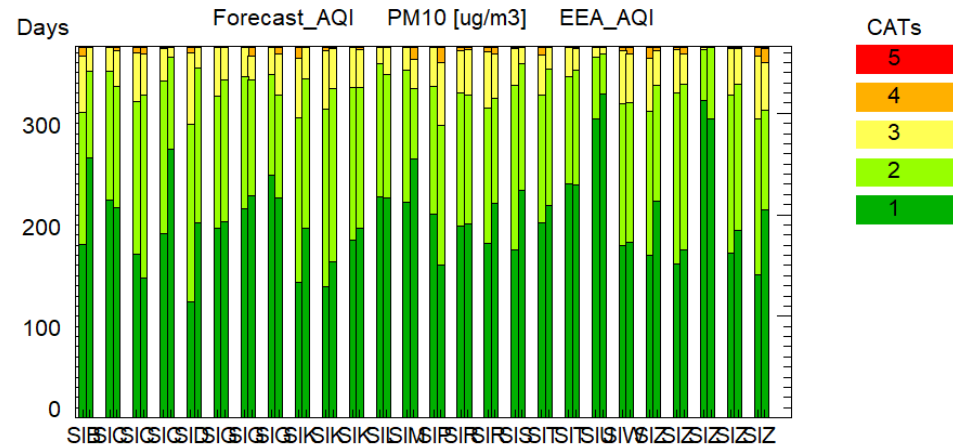
- Forecast AQI
- Target

Understandable after some guidance:

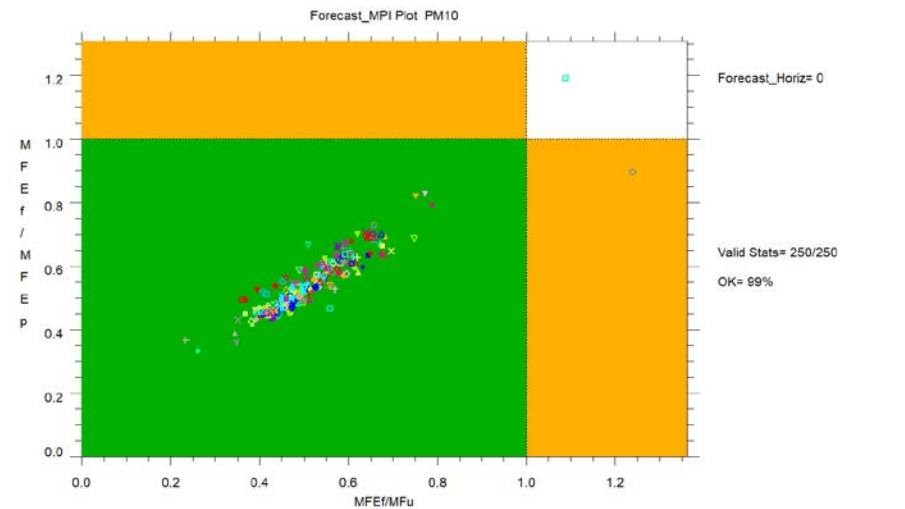
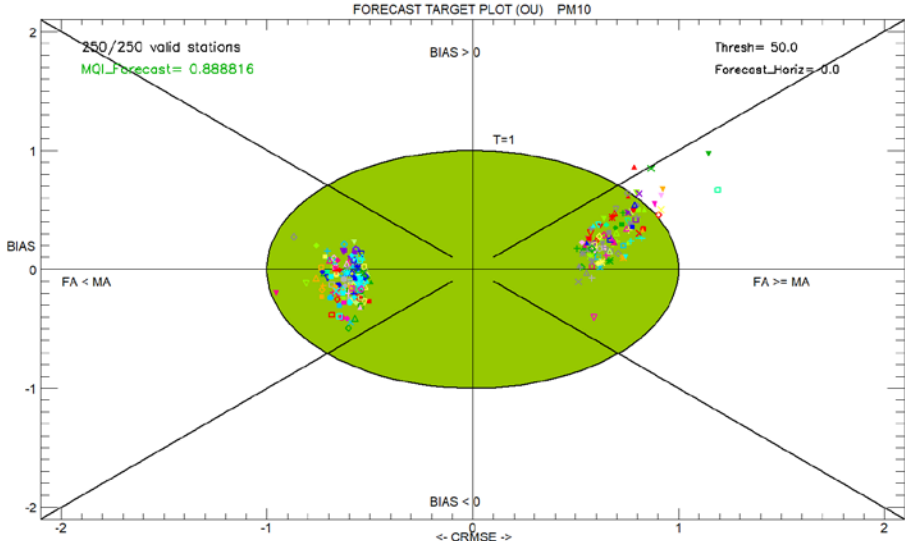
- Barplots

Black Magic:

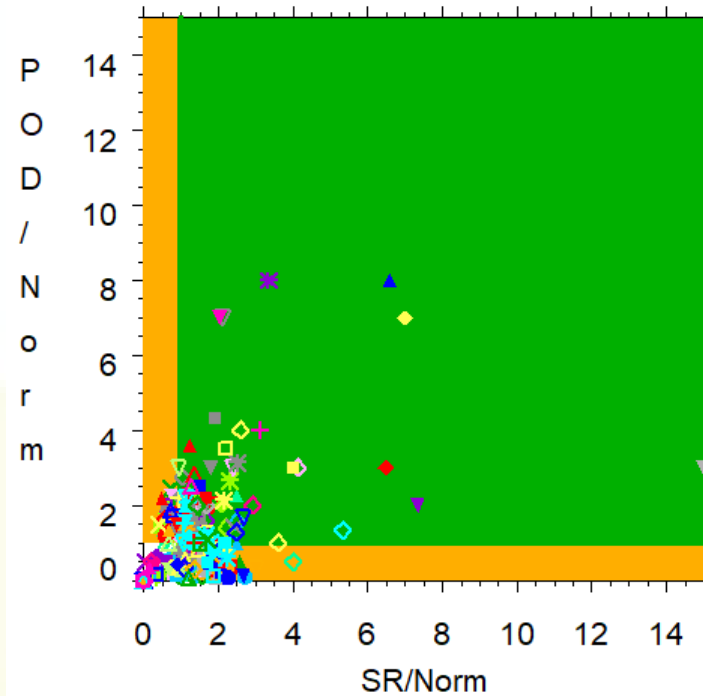
- Forecast performance plots



# Good model – bad episode predictability ?



Forecast Threshold Performance Normalized PM10



Forecast\_Horiz= 1  
 Thresh= 50.0  
 MPI\_(POD/PODp)= 0.111111  
 MPI\_(SR/SRp)= 0.383256  
 214/250 valid stations  
 42 % valid Stats better than Persistence

◇ MpKrakDietla	● MpOlkuCegiel	■ MpTarRoSitko	▲ MzGutyDuCzer	■ MzRad25Czerw
□ MpKrakOsPias	● DsLwówekSiasM	▲ MpTrzebOsZWM	◇ MzKonJezWieMO	■ MzRadTochter
▲ MpKrakSwoszo	■ MpOswiecBema	◇ DsNowRudJezi	● MzLegZegrzyn	● MzSiedKonars
◇ MpKrakWadow	● MpRabkaOrkan	▲ MpTuchChopin	▲ DsOlawZolnAK	● MzSierWiosnyM
◇ MpKrakZloRog	● MpSkawOsOgro	▲ MpWadowiBalyM	● MzOstroHalle	▲ DsOlesBrzoza
▲ MpMyslenSoli	▲ MpSuchaNiesz	● MpZabieWapie	▲ MzOtwoBrzoza	▲ MzWarAKrzywo
▲ MpNiepo3Maja	▲ MpSzczawParkM	▲ MpZakopaSien	▲ MzPiasPulask	▲ MzWarAlNiepo
▲ MpNoSacznadb	▲ MpSzymbaGorl	▲ MzBelsiGFPAN	▲ MzPlocKroJad	● MzWarBajkowa
▲ MpNoTargATy	▲ MpTarBitStud	▲ MzBialaKmicicM	● MzPlocMiReja	● MzWarChrosci

How to interpret/explain this to stakeholders/authorities?

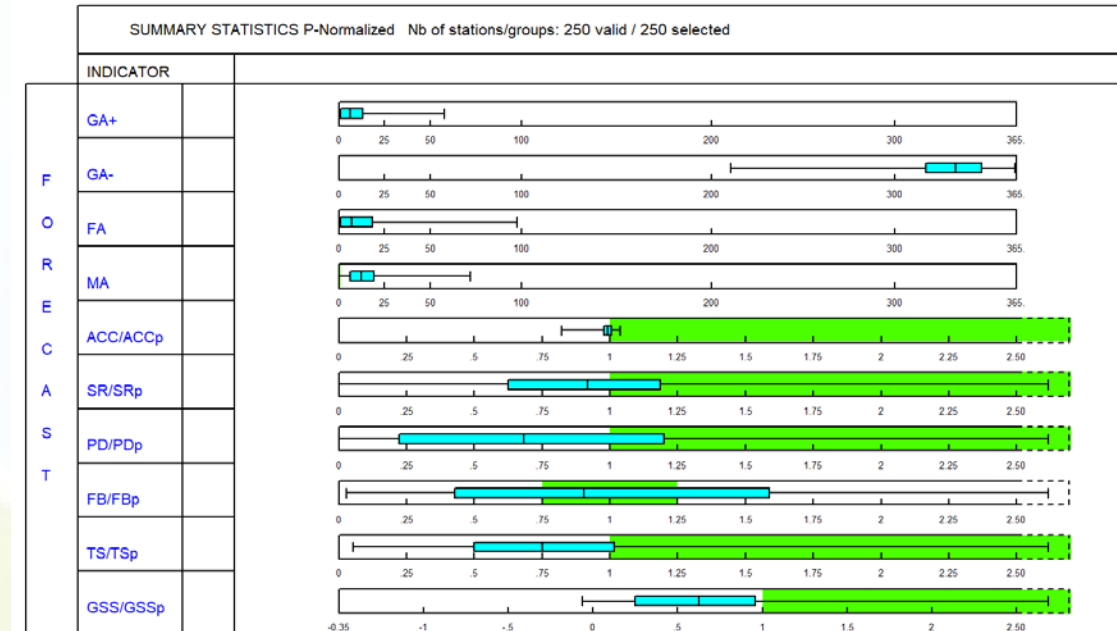
What could be our goal/statement here?

● MpKrakDietla	● MpOlkuCegiel	● MpTarRoSitko	● MzGutyDuCzer	● MzRad25Czerw
● MpKrakOsPias	● DsLwówekSiasM	● MpTrzebOsZWM	● MzKonJezWieMO	● MzRadTochter
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# Conclusions



- Delta tool forecast plots and indicators are useful for users, and have a big potential as a source for evaluation diagnostic
- Some of the plots could be beneficiary for stakeholders, some of the plots are rather too complicated in this case
- Have we come to the point to approve that used methodologies and indicators are „fit for the purpose” of evaluating air quality forecasts?
- If so, how we can proceed with the interpretation of all plots? What can we say when the model is „good”, but episode predictability is not so well?
- What could be the target for episodes predictability? Is model have to be better than persistence for all stations?





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**Thank You!**

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