

Validation and sensitivity analysis of ozone forecasts to air temperature and solar radiation

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In the paper a particular feature of ozone forecasting is studied in details – the sensitivity to air temperature and global solar radiation.

QualeAria modelling system for operational forecasting of transport and background air pollutants concentrations over Slovenia and its validation for PM10 and ozone has been presented in details on previous Harmo Madrid conference (Eulerian model Farm by Arianet, 12 km resolution). Models performance is satisfactory, but still with some minor difficulties. One of the aspects of the possible modelling system enhancements is studied in details.

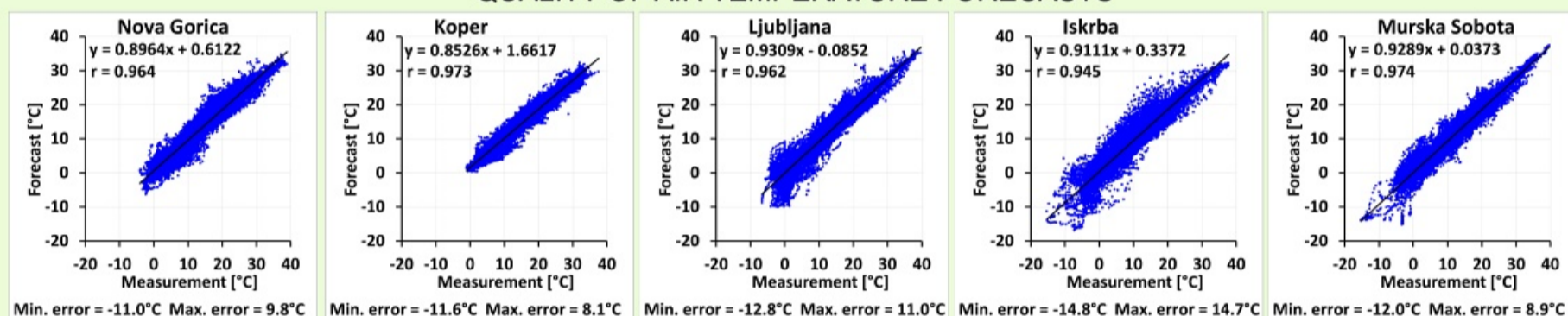


On particular locations where ozone monitoring stations are available we will use forecasts of global solar radiation and temperature to enhance QualeAria model ozone forecasts using artificial neural networks technique. The following data analysis is part of the feature selection process for neural network model setup.

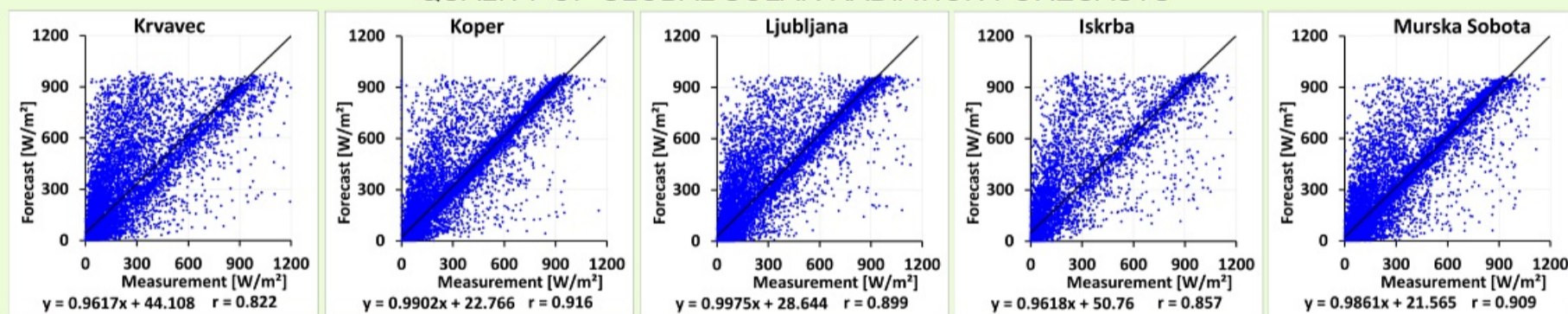
Because ozone formation is very much dependant on air temperature and solar radiation, errors in their forecast may be one of the important reasons for eventual errors in ozone forecasts. Air temperature is relatively easy to forecast by NWP models, but solar radiation may have more difficulties due to special conditions over very complex terrain of Slovenia.

Dependence (sensitivity) of ozone measurement and forecast to air temperature and solar radiation is compared for several locations.

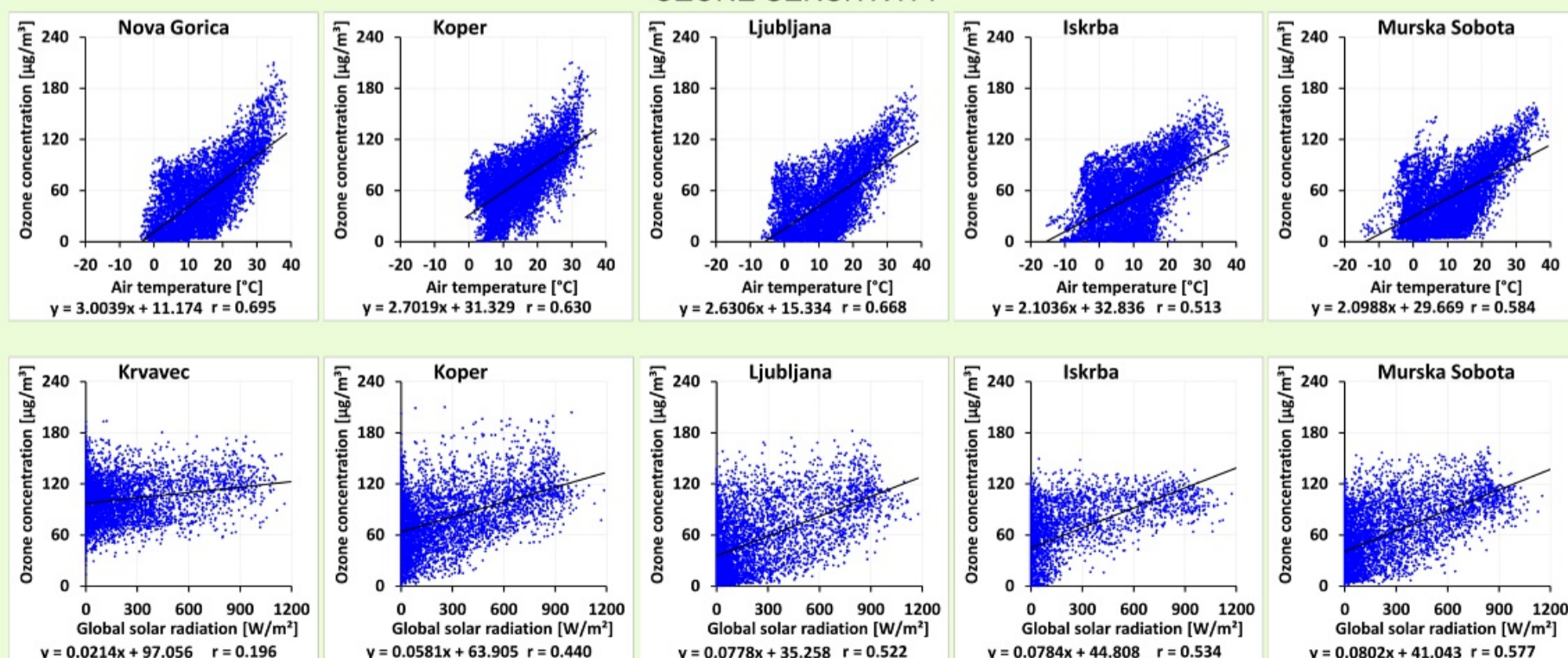
QUALITY OF AIR TEMPERATURE FORECASTS



QUALITY OF GLOBAL SOLAR RADIATION FORECASTS



OZONE SENSITIVITY



ACKNOWLEDGEMENT

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