METHODOLOGY
An on-line assimilation scheme is used to integrate observations and simulations of hourly O3 concentrations. Observations are provided by O3 monitoring stations, NO2 monitoring stations or OMI sensor. Background data are provided by simulations performed by the deterministic chemical and transport model TCAM (Carnevale et al., 2008).

ASSIMILATION SCHEME

The validation is carried out comparing the results of the model simulations \( x(t) \) with the values measured by the stations chosen for the validation \( y(t) \). The box plots show the comparison between the case with the assimilation (OI) and without the assimilation (TCAM). Figures 4-6 show the comparison of the three different assimilations: 1) O3 ground level data measured by monitoring stations; 2) NO2 ground level data measured by monitoring stations; 3) NO2 column data measured by OMI sensor.

RESULTS

The impact on the O3 fields estimated over the North Italy domain for the period from 15th May to 15th July 2007 is evaluated for three different assimilations: 1) O3 ground level data measured by monitoring stations; 2) NO2 ground level data measured by monitoring stations; 3) NO2 column data measured by OMI sensor. The data assimilation is performed using the OI algorithm. The statistics show that the assimilation of O3 significantly improves the estimation of ozone concentrations, while NO2 assimilation does not seem to give benefit to the estimate of ozone fields, for both the data measured by ground stations and the OMI sensor.

CONCLUSION

In this work, the impact on the O3 fields estimated over the North Italy domain for the period from 15th May to 15th July 2007 is evaluated for three different assimilations: 1) O3 ground level data measured by monitoring stations; 2) NO2 ground level data measured by monitoring stations; 3) NO2 column data measured by OMI sensor. The data assimilation is performed using the OI algorithm. The statistics show that the assimilation of O3 significantly improves the estimation of ozone concentrations, while NO2 assimilation does not seem to give benefit to the estimate of ozone fields, for both the data measured by ground stations and the OMI sensor.