REPORT ABOUT ENVISAT SCIAMACHY NRT OZONE PRODUCT (SCI_RV__2P) FOR JULY 2005

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1. Key points for July 2005

- SCIAMACHY data quality stable.
- SCIAMACHY data about 5 DU lower in the global mean than ECMWF ozone values.
- Slight increase of the (negative) global mean departures (SCIAMACHY-ECMWF) from 28 July onwards.
- No data on 4 July (00 UTC) and 10 July (06, 12, 18 UTC).

2. Quality and amount of received data

This report covers SCIAMACHY NRT total column ozone data for July 2005. Amount of received data and their quality are shown in Figures 1-6 for various latitude bands. Geographical distributions of mean number of data, mean observation values and mean first-guess departures are shown in Figures 7-9. Timeseries of zonal mean number of data, zonal mean observation values and zonal mean first-guess departures are shown in Figures 10-12. Figures 13-15 present the scatter plots of SCIAMACHY ozone values against first-guess and latitude values, as well as the scatter plot of first-guess departures of SCIAMACHY ozone values against latitude.

The timeseries plots (Figures 1-6) show that SCIAMACHY data quality is stable in July. The global mean departures (SCIAMACHY-ECMWF) are around -5 DU, however slightly larger global mean negative biases can be seen after 28 July until the end of the month.

The standard deviations of the model departures have also been stable in July. Regarding the SCIAMACHY data standard deviations, the decrease observed from April to the end of June is not noticeable anymore. In the global mean the standard deviations of the model departures are around 15 DU, whereas the standard deviations of the SCIAMACHY data are roughly around 30 DU.

There are no data on 4 July (00 UTC) and 10 July (06, 12 and 18 UTC).

The geo plots, the hovmoeller plots and the scatter plots (Figures 7-15) show that the largest biases are observed at the southern high latitudes. These large mean departures are likely to occur at high solar zenith angles.

3. Remarks

This monitoring report was produced with the operational ECMWF model (CY29R2). In cycle CY29R2 ozone layers from SBUV/2 on NOAA-16 and SCIAMACHY total column ozone data produced by KNMI are actively assimilated. The comparison of SCI_RV__2P data against the ECMWF ozone field does not give an independent validation.

All ozone values are in Dobson Units (DU).

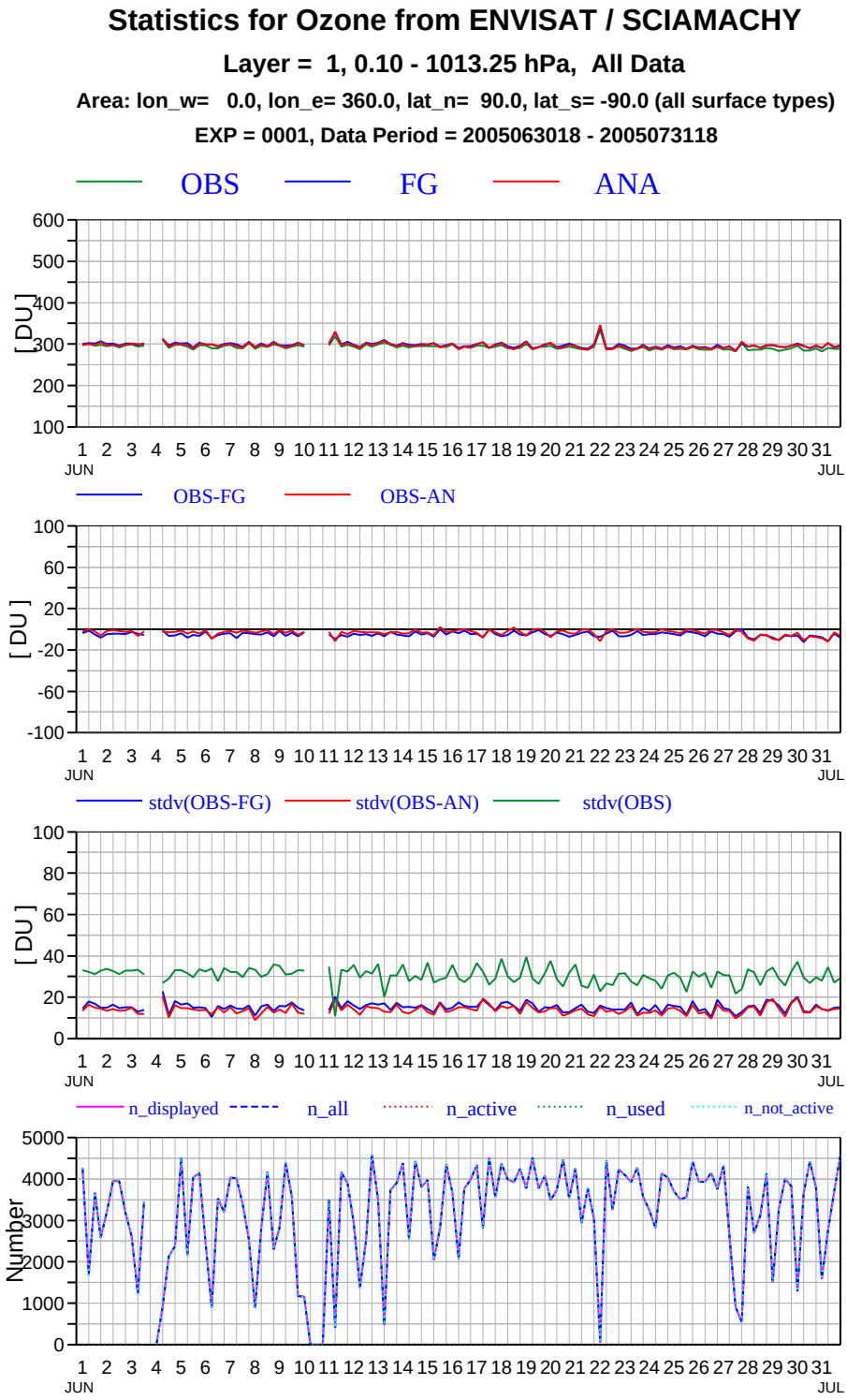

Fig. 1. Time series of mean observations, first guess and analysis values (top panel), first-guess and analysis departures (second panel), standard deviations (third panel) and number of data (bottom panel) per 6-hour cycle for ENVISAT SCIAMACHY NRT ozone data for July 2005 (Global means).

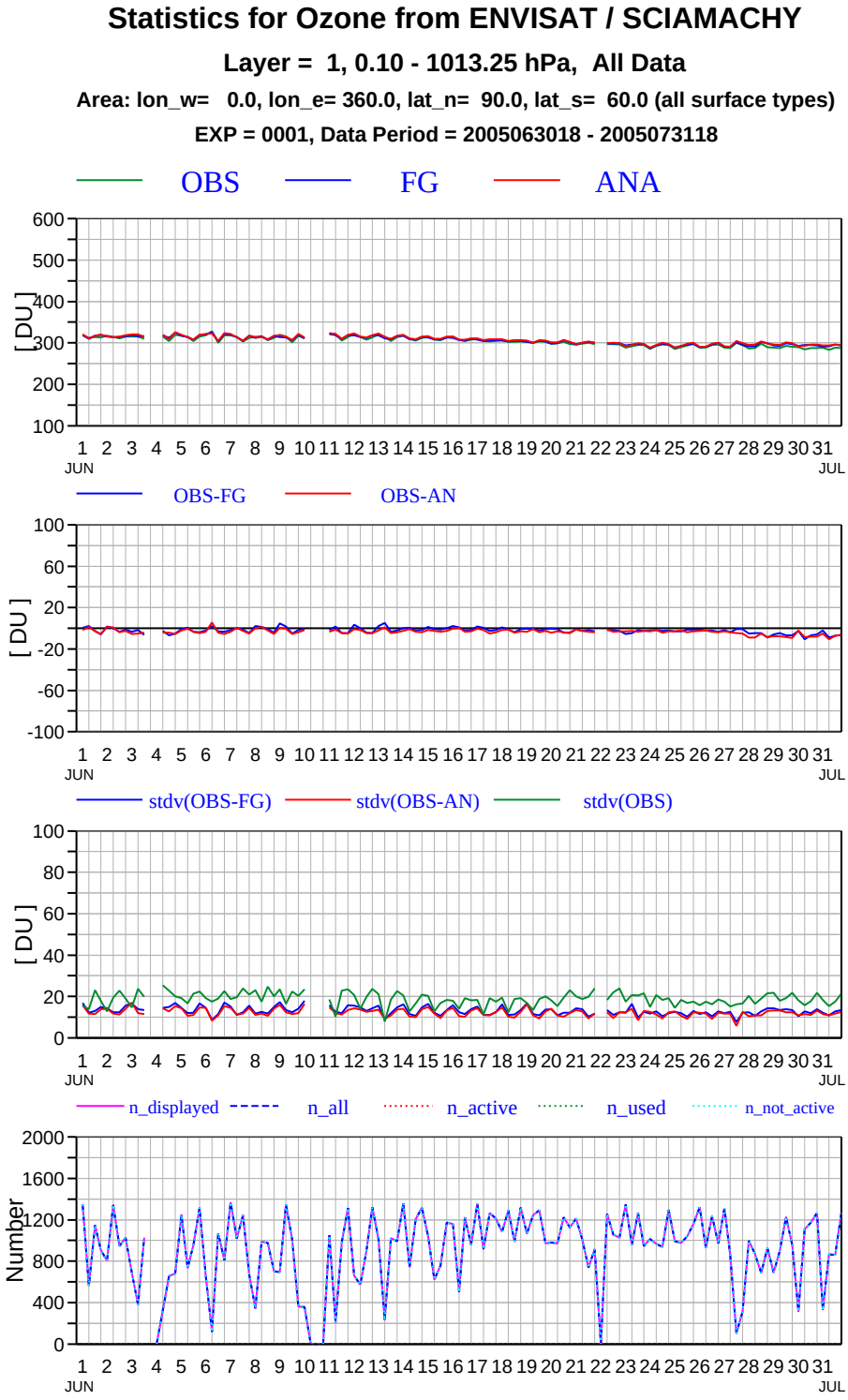

Fig. 2. As Fig.1 but for 90-60N.

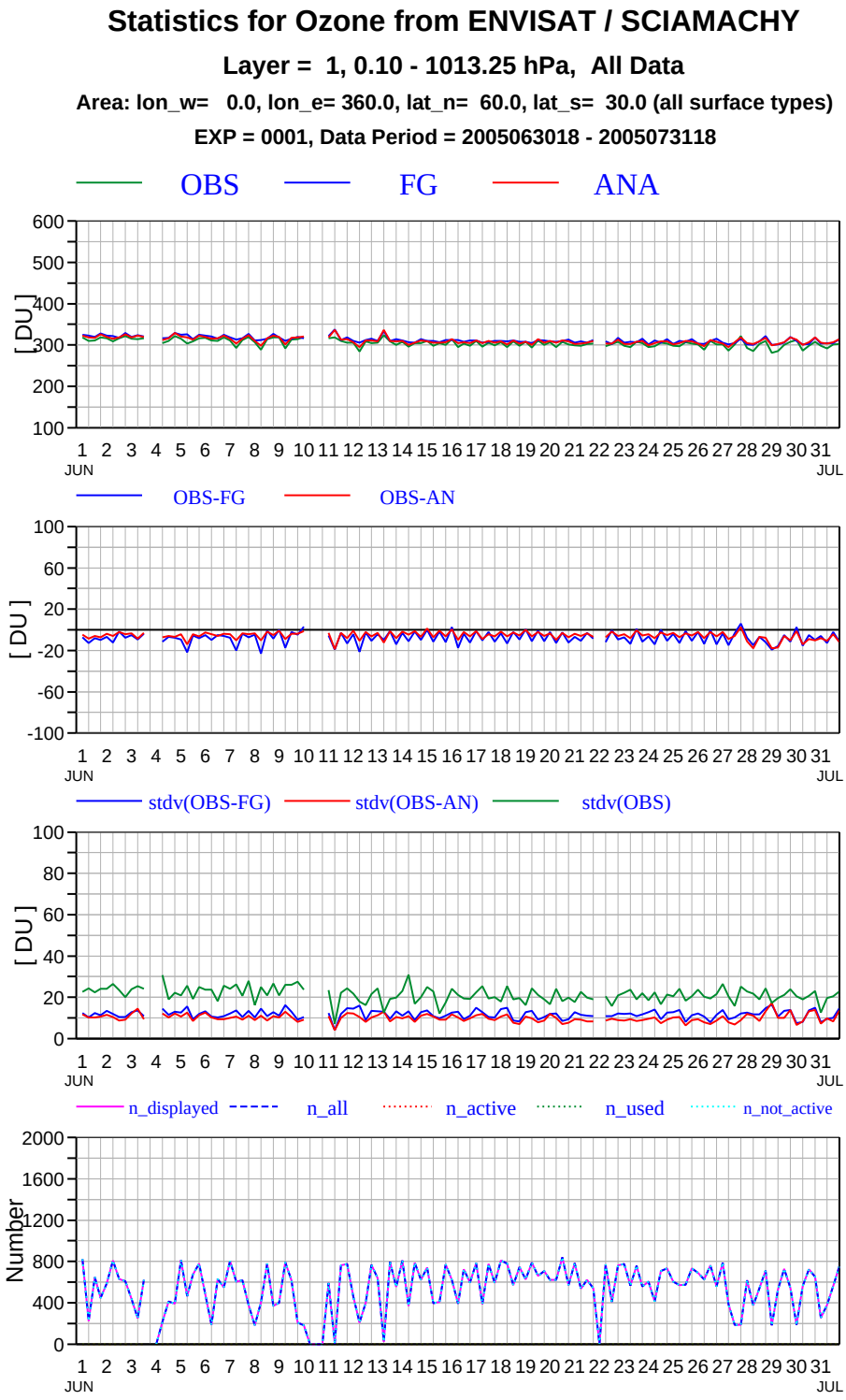

Fig. 3. As Fig. 1 but for 60-30N.

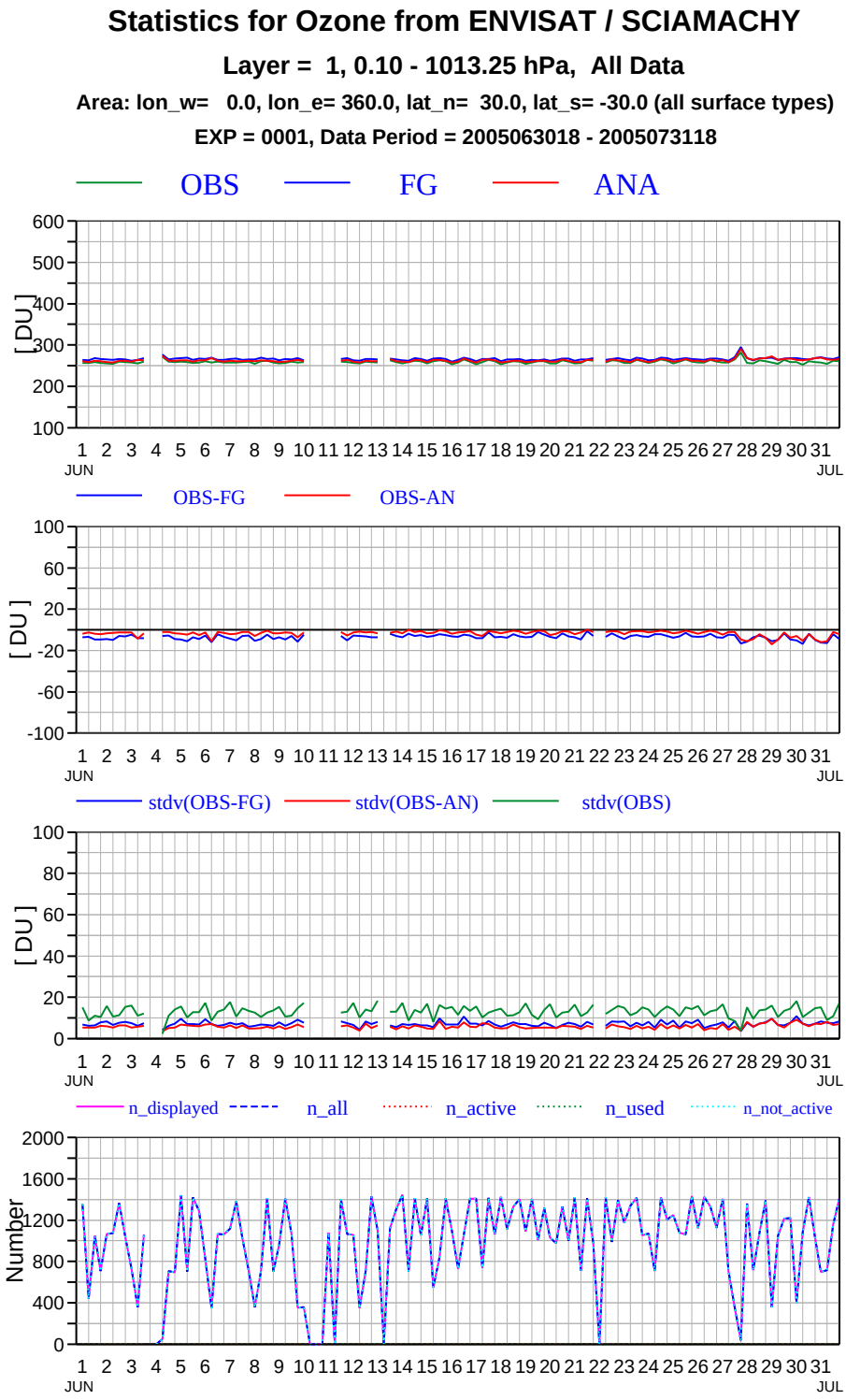

Fig. 4. As Fig. 1 but for 30N-30S.

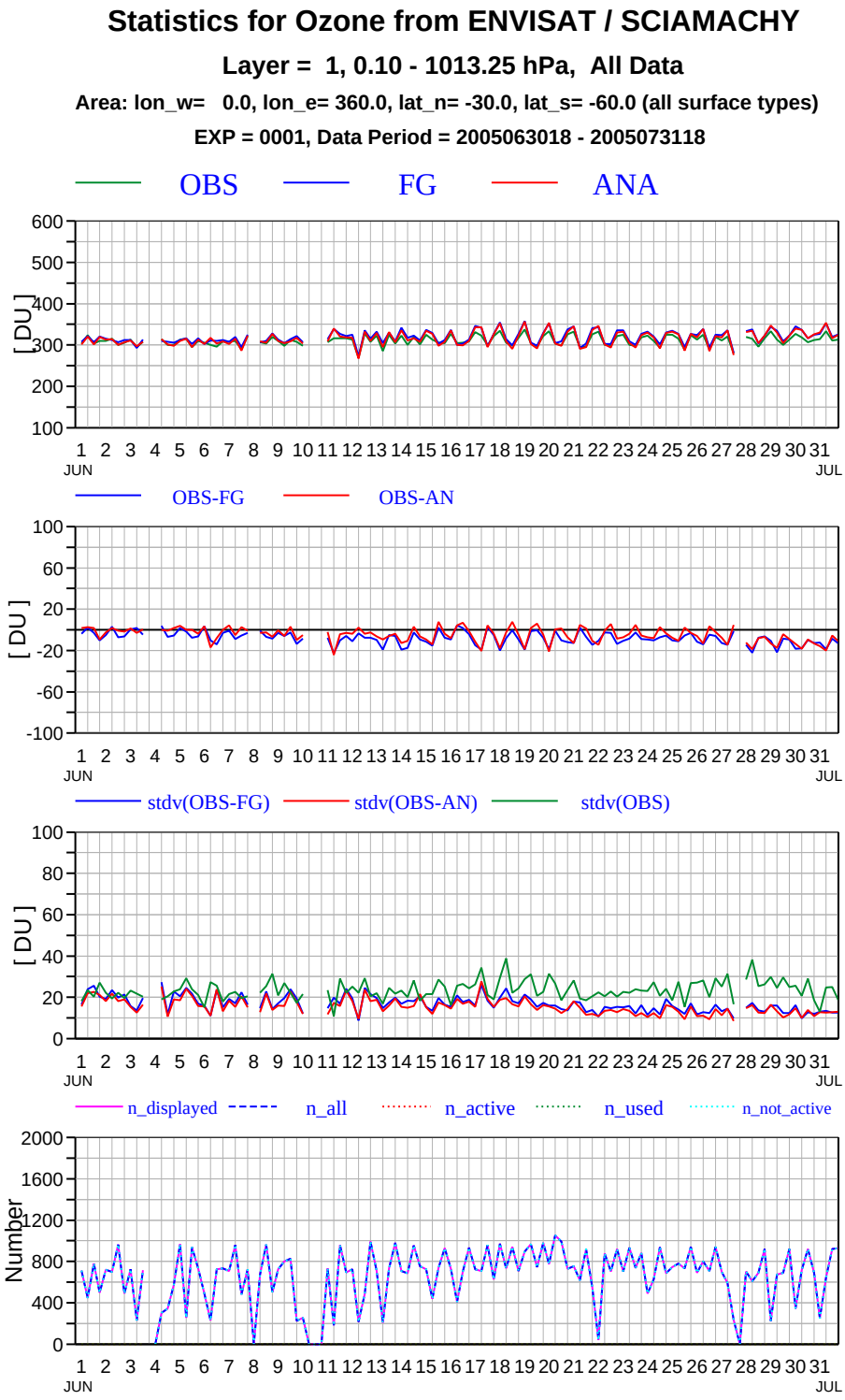

Fig. 5. As Fig. 1 but for 30-60S.

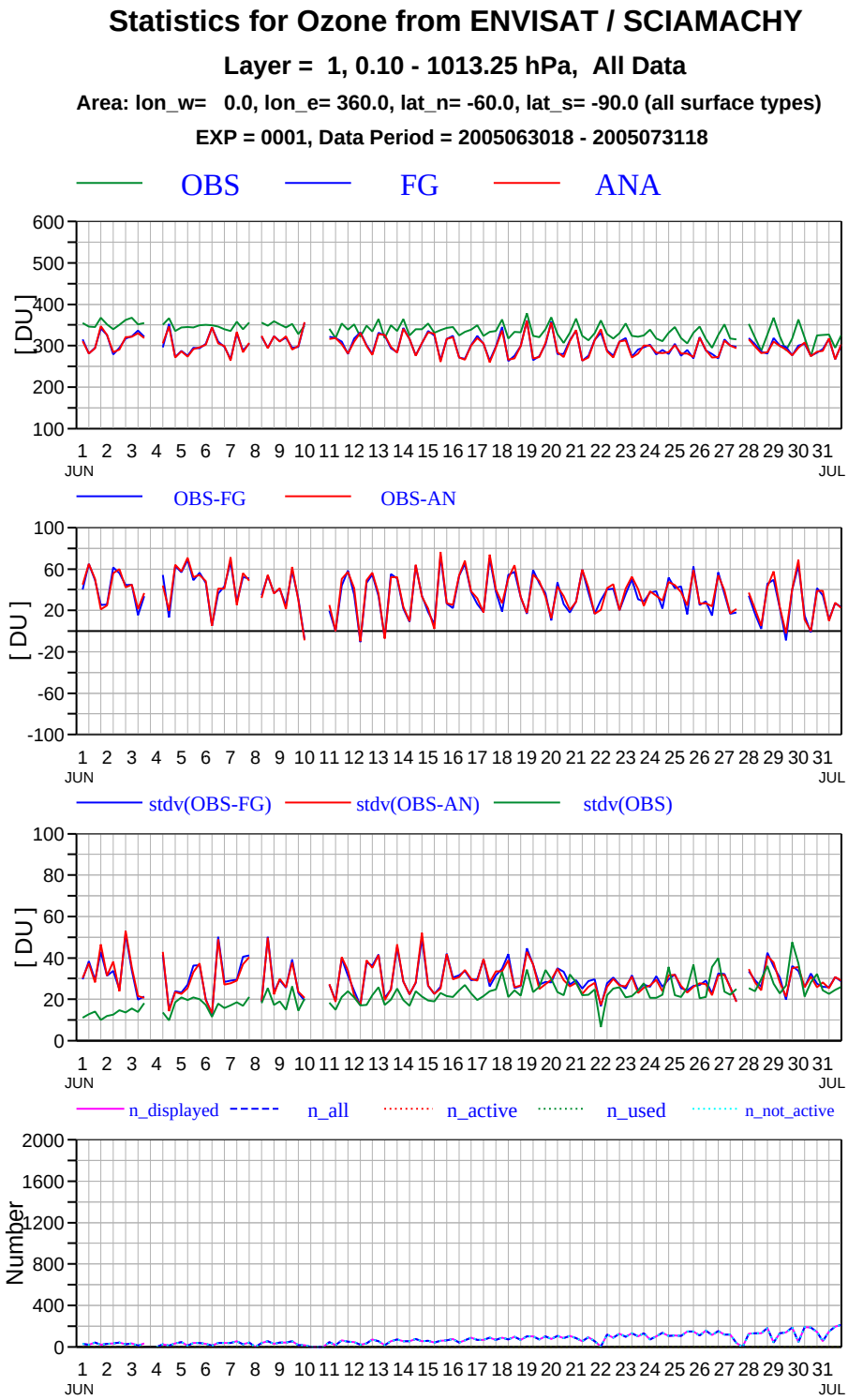

Fig. 6. As Fig. 1 but for 60-90S.

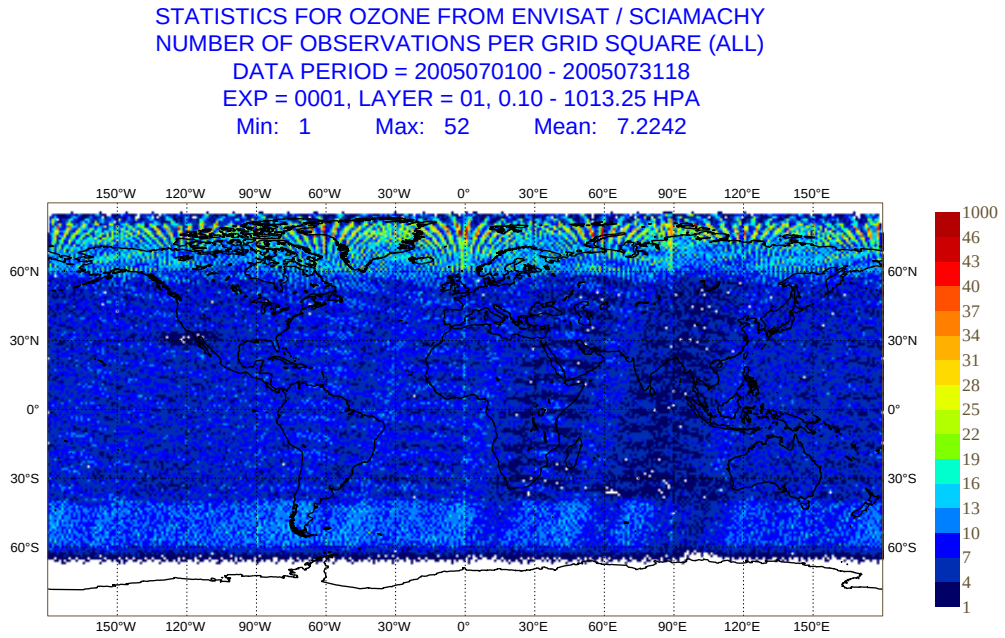

Fig. 7. Geographical distribution of mean number of data for ENVISAT SCIAMACHY NRT ozone data for July 2005.

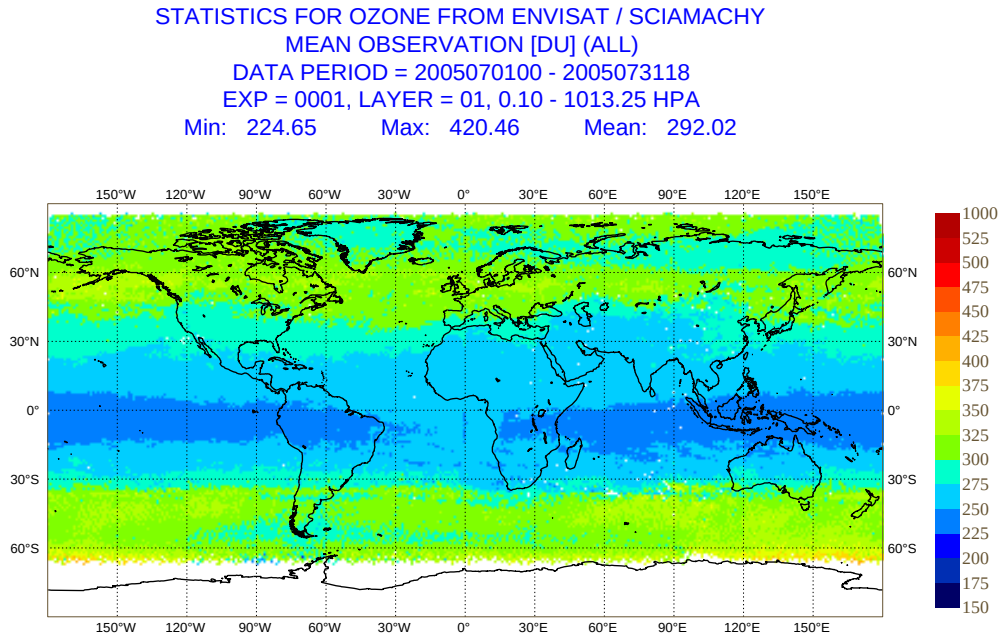

Fig. 8. Geographical distribution of mean observation values for ENVISAT SCIAMACHY NRT ozone data for July 2005.

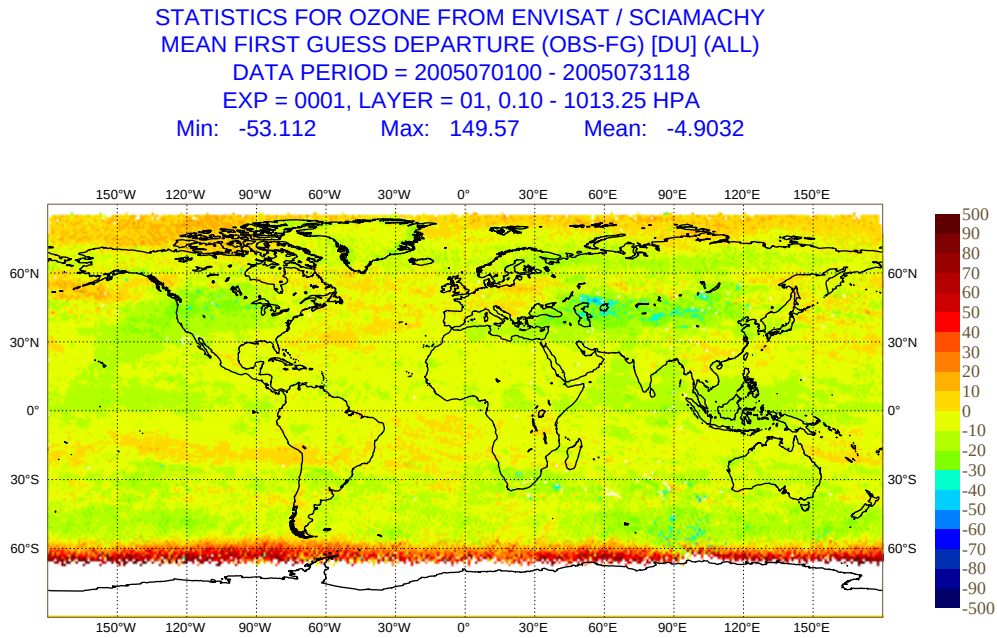

Fig. 9. Geographical distribution of mean first-guess departures for ENVISAT SCIAMACHY NRT ozone data for July 2005.

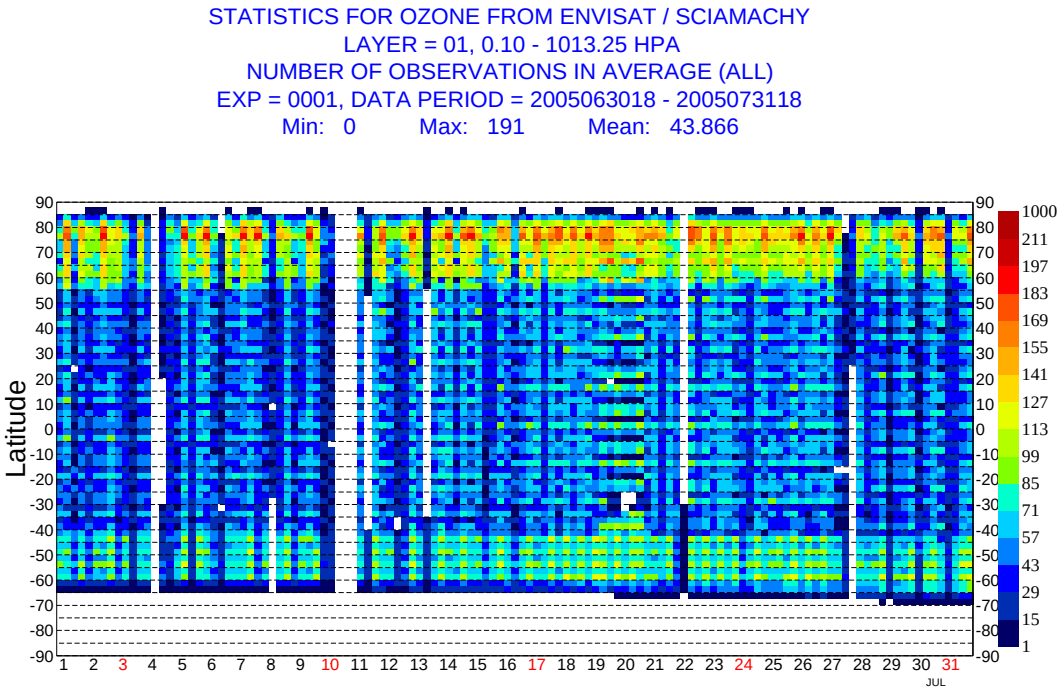

Fig. 10. Hovmoeller diagram of zonal mean number of data for ENVISAT SCIAMACHY NRT ozone data per 6-hour cycle for July 2005.

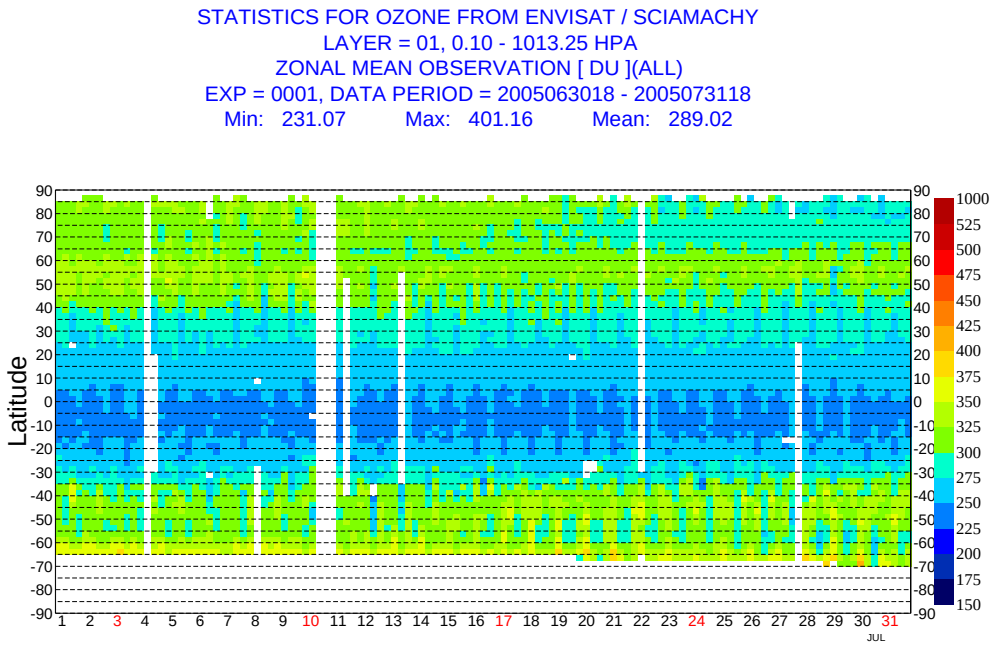

Fig. 11. Hovmoeller diagram of zonal mean observation values for ENVISAT SCIAMACHY NRT ozone data per 6-hour cycle for July 2005.

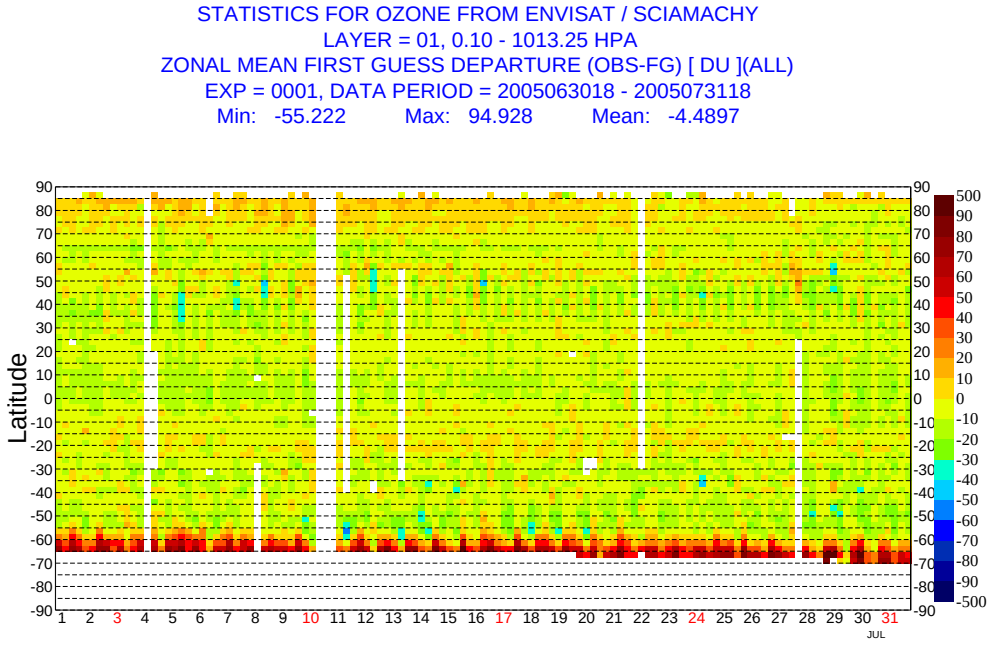

Fig. 12. Hovmoeller diagram of zonal mean first-guess departures for ENVISAT SCIAMACHY NRT ozone data per 6-hour cycle for July 2005.

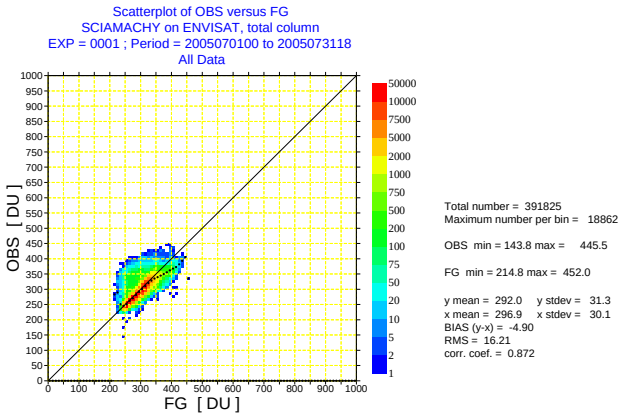

Fig. 13. Scatter plot of ENVISAT SCIAMACHY ozone values against latitude for July 2005. The colours show the number per bin, the black dots the mean values per bin.

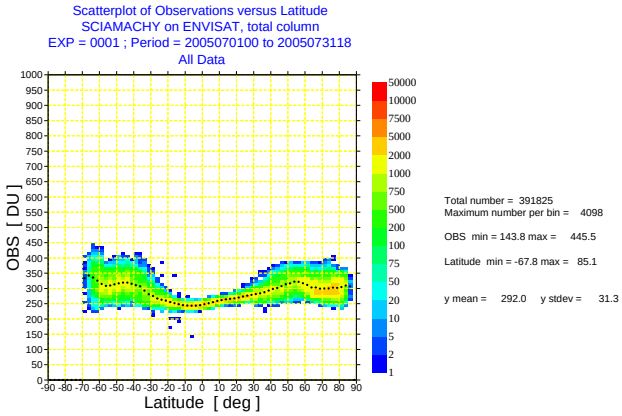

Fig. 14. Scatter plot of ENVISAT SCIAMACHY ozone values against latitude for July 2005. The colours show the number per bin, the black dots the mean values per bin.

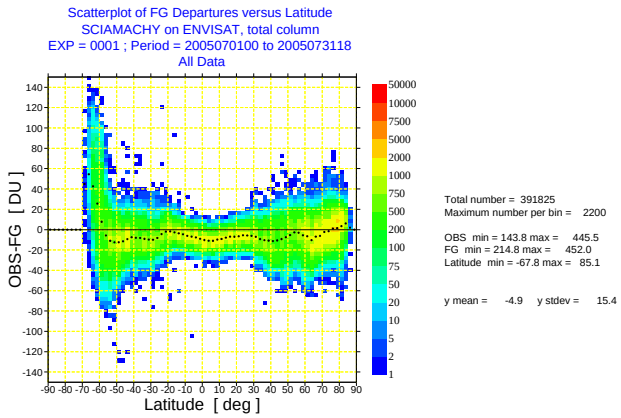

Fig. 15. Scatter plot of first-guess departures of ENVISAT SCIAMACHY ozone against latitude for July 2005. The colours show the number per bin, the black dots the mean values per bin.