

Introduction

The Aura Validation Data Center (AVDC) is a centralized, long term archive for data validation, mainly in support of the Earth Observing System (EOS) Aura validation and science, but also supports other A-train and Earth Science satellites validation activities.

As well as hosting all Aura Level 2 data and special campaigns measurements, the AVDC also collect and harmonize correlative datasets of various satellites, balloon, ground-based, and aircraft measurements. In addition, the center provides regular 16 day instrument Field-Of-View (FOV) predictions for Aura, Aqua, Terra, and S-NPP, accompanied by ground stations and special campaigns overpass FOV's. Data subsets for key ground stations and special campaigns are routinely posted on the AVDC website, and special subsets are also provided upon PI's and users request. Routine operations and data sets are hosted at <http://avdc.gsfc.nasa.gov>

Available datasets

- Mirror all Aura L2 data from DISC
- Convert, harmonize and maintain up to date correlative datasets
 - Lidar, balloon-sondes, FTIR, MWR, UVVIS DOAS, Brewer, Pandora
- Maintain Aura related campaign archives or related data
 - DISCOVER-AQ, Fairbanks BrO campaign (2011), GloPac, MOHAVE,...
 - Mirror aircraft/large balloon missions, e.g. INTEX-A/B, AVE, ...
- Host and convert preliminary, experimental, and complimentary satellite datasets
- OMNO2 L3, PROFOZ, and OMH2O, SO2
- OMPS TC, NP, and LP
- AIRS, NOAA 16-19 SBUV v8
- MetOp GOME2, ERS-2 GOME
- ENVISAT GOMOS, MIPAS, SCIAMACHY (converted to hdf5 format)
- GOME2 and SCIAMACHY Fluorescence
- GOSAT, OSIRIS
- ACE-FTS, ACE-MAESTRO

Data subsets and overpasses

- Sub-setting is updated as Aura L2 data becomes available for NDACC and WOUDC and other key ground stations
 - OMI O3, aerosol, NO2, UV, SO2, O3 profiles
 - MLS, HIRDLS, and TES
- Sub-setting of non-Aura data
 - SBUV
 - OMPS TC and LP (ozone, aerosol)
 - MODIS, GOME-2, GOME, SCIAMACHY, GOMOS (on request)

-Continue

- Campaign and regional sub-setting on request
- Contact AVDC for information/additional requests

Cal-/Val support

- PI and user support
 - Data collection/hosting, sub-setting, and h5 conversion
- Tools and documentation online
 - Generic Earth Observation Metadata Standard (GEOMS)
 - Creation of HDF datasets (idlcr8hdf + TAV)
 - Conversion Data Suite (CDS): *convert from NDACC Ames, WOUDC, SHADOZ, etc*
 - *Convert ENVISAT SCIAMACHY, MIPAS, and GOMOS to hdf5 format*
 - Download tools
- Aura ST and WG documentation and presentations
- HDF4/5 read/write available for correlative data

Instrument Field of View (FOV)

- Aura, Aqua, Terra, and S-NPP sub-satellite FOVs
 - MLS, OMI, TES, OMPS TC and LP instrument FOVs
 - Regular 16-day instrument FOV predictions for ground stations
- FOV predictions in support of PIs and special campaigns

GEOMS

Generic Earth Observation Metadata Standard (GEOMS):

- <http://avdc.gsfc.nasa.gov/GEOMS>
- AVDC maintain and update Conversion Data suite (CDS), idlcr8 tools, and Table Attribute Values (TAV)
- Shared standard of AVDC, EVDC, GECA, NDACC, ...
- Published in Mar 2011
- AVDC fully compliant since Aug 2011.

GEOMS applications:

- Atmospheric datasets
- Datasets from ocean and land observation, e.g. buoy, SST, SSP, LAI
- Mapping and conversion of other data formats and metadata standards
- NetCDF (including CF)
- NASA Ames (e.g.. NDACC)
- WOUDC
- SHADOZ
- NOAA CMDL

AVDC support for SAGE III

- FOV predictions host
- Data host
- Ground stations overpass and FOV subsets
- Satellites correlative measurements
 - OMPS LP (O3, aerosol)
 - MLS (O3, H2O)
 - OSIRIS (O3, NO2, aerosol)
 - ACE (O3, NO2, H2O)
- Balloon-sondes, Lidars and MWR
- PI requests

OMPS LP validations

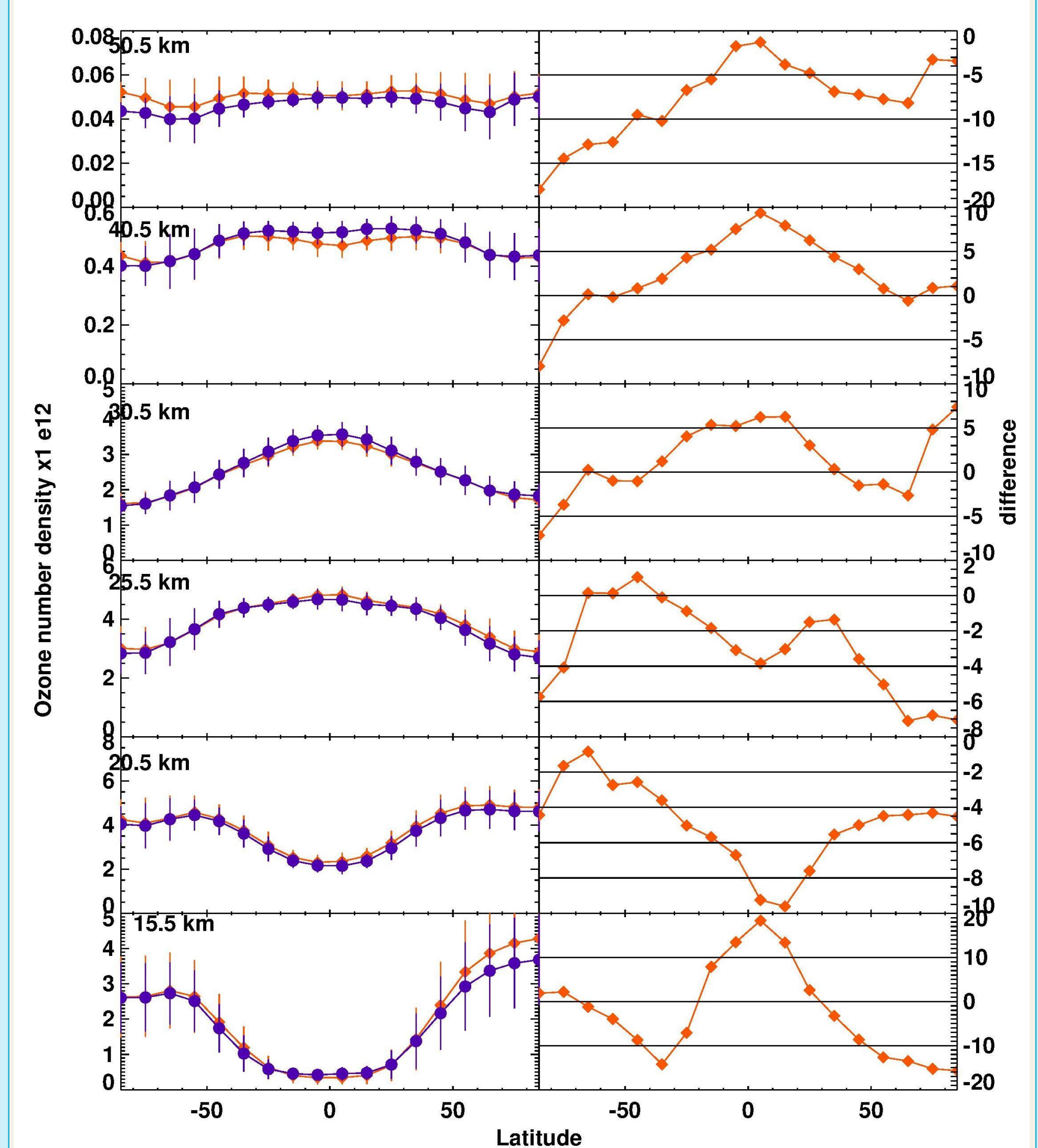


Figure 1: Left panel is mean ozone profile at selected altitudes for MLS (red) and OMPS LP (blue) vs. latitude. Right panel is the percent difference between the two instruments (2012-2014).

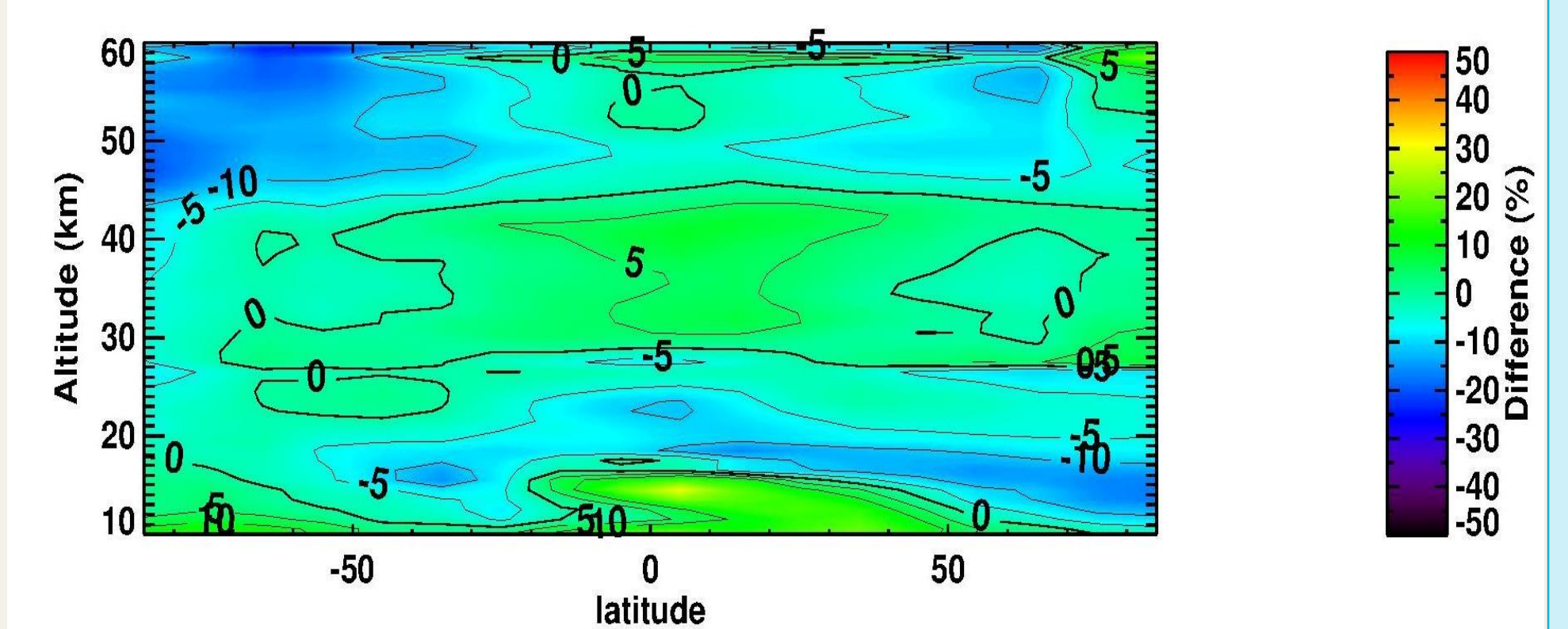


Figure 2: Zonal mean plot of the relative difference for OMPS LP - MLS in percent (2012-2014).

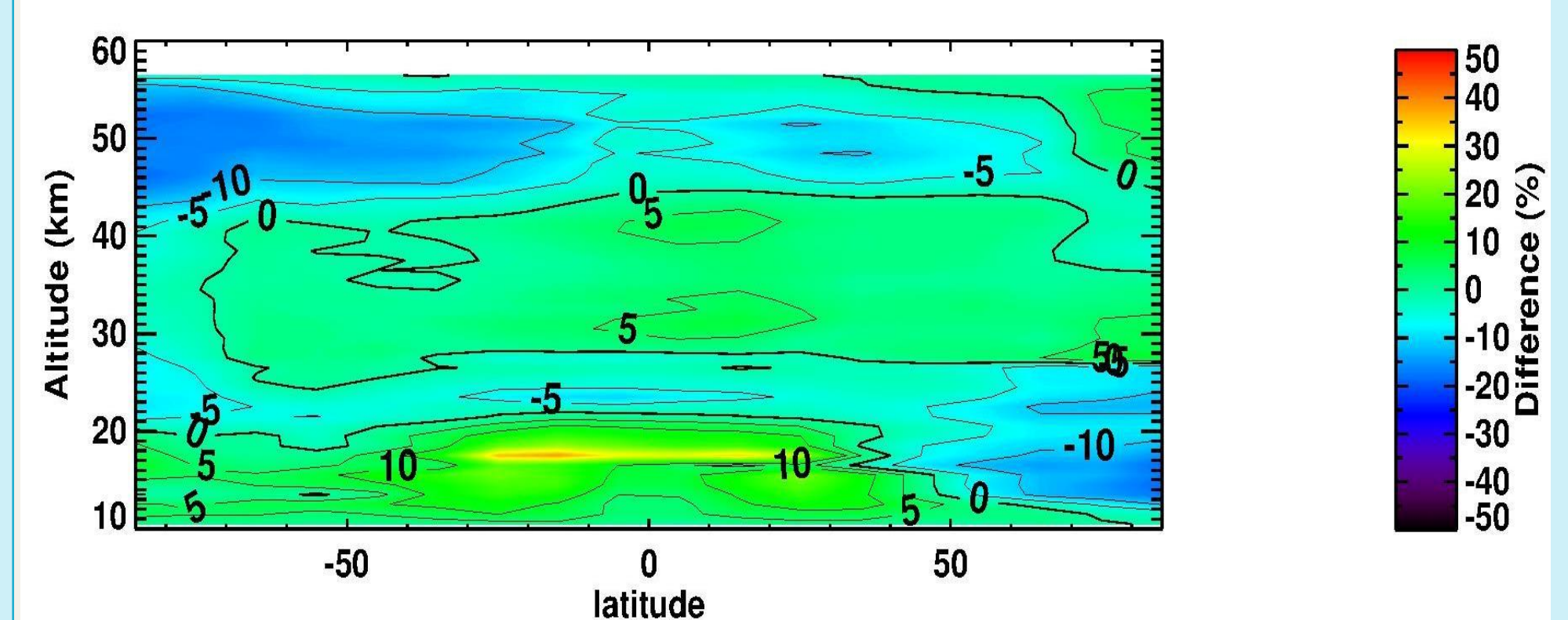


Figure 3: Same as fig. 2 but for OMPS LP - OSIRIS

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