

## Ozone Mapping and Profiler Suite



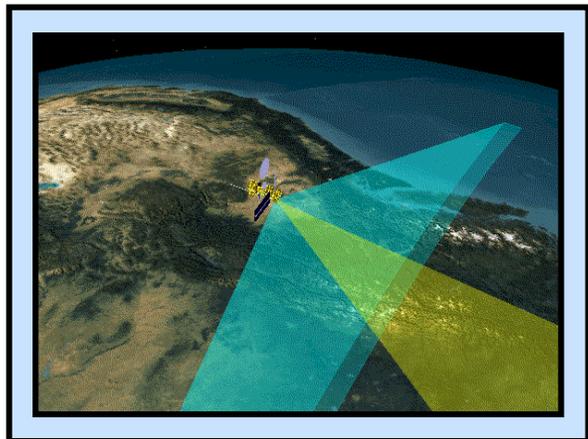
**OMPS Sensor Suite**

The Ozone Mapping and Profiler Suite (OMPS) monitors ozone from space. OMPS will collect total column and vertical profile ozone data and continue the daily global data produced by the current ozone monitoring systems, the Solar Backscatter Ultraviolet radiometer (SBUV)/2 and Total Ozone Mapping Spectrometer (TOMS), but with higher fidelity. The collection of this data contributes to fulfilling the U.S. treaty obligation to monitor the ozone depletion for the Montreal Protocol to ensure no gaps on ozone coverage.

The Nadir sensor uses a wide field-of-view push-broom telescope to feed two separate spectrometers. The Nadir total column spectrometer (mapper) measures the scene radiance between 300 and 380 nanometers (nm) with a resolution of 1 nm sampled at 0.42 nm and a 24-hour ground revisit time.

Measurements from this spectrometer are used to generate total column ozone data with better than 50 X 50 kilometer (km) resolution at Nadir.

The Nadir profile spectrometer measures between 250 and 310 nm with the same spectral sampling in a single ground pixel of 250x250 km.



**OMPS Fields of View**

The Limb profiler is being flown as an experimental sensor on the NPOESS Preparatory Project (NPP) and will provide a higher vertical resolution capability than the Nadir profiler.

### OMPS Mission Products

The OMPS program will create five ozone products:

- High performance Total Column environmental data records (EDR)
- Heritage TOMS V7 Total Column EDRs
- Limb Experimental Profile Product
- Heritage SBUV V6 Nadir Profile data records
- IR Total Column data records from Cross-track Infrared Sounder (CRIS) radiances

#### Spectral Range:

Nadir mapper	300 - 380 nm
Nadir profiler	250 - 310 nm

#### Spectral Sampling Interval:

Nadir mapper	2.4 pixels per FWHM
Nadir profiler	2.4 pixels per FWHM

(Full Width Half Maximum)

#### Spectral Resolution (FWHM):

Nadir mapper	1.0 nm
Nadir profiler	1.19 nm

#### Field-of-View (FOV):

Nadir mapper	110 x 0.3 deg
Nadir profiler	16.7 x 0.3 deg
Limb profiler	8.5 x 1.85 deg (3 slits)

#### Revisit time:

Nadir mapper	24 hours
Limb profiler	4 days (average)

<b>Mass</b>	68 kg
<b>Power</b>	108 W
<b>Data rate</b>	165 kbps
<b>Sensor Size</b>	35 x 54 x 56 cm

#### Total Column EDR:

Horizontal Cell Size:	50 km at Nadir
Measurement Range:	50-650 Dobson Units (DU)
Accuracy:	15 DU or better
Precision:	3 DU + 0.5% or better
Long-term Stability:	1% over 7 years

#### Ozone Profile (Nadir):

Vertical Coverage:	0 – 60 km
Vertical Cell Size:	5 km
Horiz. Cell Size:	250 km
Measurement Range:	0.1 – 15 ppmv
Accuracy:	7% (at 1 mb)
Precision:	10% (at 30 mb)
Long-term Stability:	2% over 7 years

In addition to providing operational ozone data products, OMPS has the potential to provide other surface and atmospheric science data, including anthropogenic trace gases.