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Executive Summary

This document lists the ozone Essential Climate Variable (ECV) products that have been developed, improved, generated and/or extended by the O3_cci+ project team, along with a summary of their main characteristics and the archive where the data set can be downloaded. This list includes satellite products developed in the current phase of the project (2022-2025) and the previous phase (2019-2022). The operational production of many level-3 and level-4 products was transferred to the Copernicus Climate Change Service, but algorithm development continues for some of these as part of O3_cci+.

The Climate Research Data Package includes four types of ozone ECV products

- total ozone column,
- tropospheric ozone column,
- nadir-based ozone profile,
- limb-based ozone profile.

These satellite products are disseminated at different processing levels

- level-2 : geophysical variables derived from geolocated and calibrated sensor data, at the same resolution and location as level-1 source data (single sensor, single observation),
- level-3 : geophysical variables averaged in time and mapped on a regular latitude grid or latitude-longitude grid (single and/or multiple sensors),
- level-4 : model output on a regular space-time grid derived by assimilation of observations (multiple sensors).

A description of these data products and how these can be used is given in the Product User Guide [RD-1]. The assessment of data product quality using independent, ground-based reference measurements and the verification of data product compliance with user requirements can be found in the Product Validation and Intercomparison Report [RD-2].



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1 Purpose and scope

1.1 Purpose & scope

This document describes the Ozone_cci+ Climate Research Data Package (CRDP), i.e. the ECV data products that were generated during the current and last phase of the project. This CRDP Release Note lists all products being released, with product specifications and the archive where data can be downloaded.

1.2 Applicable documents

[AD-1] CCI Data Standards v2.3, ref: CCI-PRGM-EOPS-TN-13-0009, 26 July 2021. Available online at: https://climate.esa.int/documents/1284/CCI_DataStandards_v2-3.pdf

[AD-2] CCI Data Policy v1.1, ref: CCI-PRGM-EOPS-TN-13-0019, 12 July 2013. Available online at: http://cci.esa.int/sites/default/files/CCI_Data_Policy_v1.1.pdf

1.3 Reference documents

[RD-1] ESA Ozone_cci+ Product User Guide (PUG), Ref. Ozone_cci+_D4.2_PUG_V2.1, Issue 2, Revision 1, 17/03/2025. Available at <https://climate.esa.int/en/projects/ozone/key-documents>.

[RD-2] ESA Ozone_cci+ Product Validation and Intercomparison Report (PVIR), Ref. Ozone_cci+_D4.1_PVIR.v5.2, Issue 5, Revision 2, 12/05/2025. Available at <https://climate.esa.int/en/projects/ozone/key-documents>.

1.4 Acronyms

ACE-FTS	Atmospheric Chemistry Experiment – Fourier Transform Spectrometer
ADP	Algorithm Development Plan
BIRA-IASB	Royal Belgian Institute for Space Aeronomy
CCD	Convective Cloud Differential
CCI	Climate Change Initiative
CDR	Climate Data Record
CHORA	Cloud Height and Ozone Reference Analysis
C3S	Copernicus Climate Change Service
DLR	German Aerospace Centre
ECMWF	European Centre for Medium-range Weather Forecast
ECV	Essential Climate Variable
ENVISAT	Environmental Satellite (ESA)
EO	Earth Observation
ESA	European Space Agency
EU	European Union



EUMETSAT	European Organisation for the Exploitation of Meteorological Satellites
FMI	Finnish Meteorological Institute
GAW	Global Atmosphere Watch
GCOS	Global Climate Observation System
GOME	Global Ozone Monitoring Experiment
GOME-2	Global Ozone Monitoring Experiment – 2
GOMOS	Global Ozone Monitoring by Occultation of Stars
GOP	GOME-type Ozone Profile
GTO	GOME-type Total Ozone
GTTO	GOME-type Tropical Tropospheric Ozone
IASI	Infrared Atmospheric Sounding Interferometer
IR	Infrared
IUP-UB	Institute of Environmental Physics, University of Bremen
JPSS	Joint Polar Satellite System
KNMI	Royal Netherlands Meteorological Institute
MetOp	Meteorological Operational Platform (EUMETSAT)
MIPAS	Michelson Interferometer for Passive Atmospheric Sounding
MLS	Microwave Limb Sounder
NASA	National Aeronautics and Space Administration
NDACC	Network for the Detection of Atmospheric Composition Change
OMI	Ozone Monitoring Instrument
OMPS	Ozone Mapping and Profiler Suite
OSIRIS	Optical and Spectroscopic Remote Imaging System
PSD	Product Specifications Document
RAL	Rutherford Appleton Laboratory
R&D	Research & Development
S5P	Sentinel-5 Precursor
SCIAMACHY	Scanning Imaging Absorption Spectrometer for Atmospheric Cartography
Suomi-NPP	Suomi National Polar-orbiting Partnership
TOMS	Total Ozone Mapping Spectrometer
TROPOMI	Tropospheric Ozone Monitoring Instrument
ULB	Université Libre de Bruxelles
URD	User Requirements Document
UV	Ultraviolet



2 Data archives

The Ozone_cci+ data products are disseminated to the public via different archives. These are listed below and linked from the tables in the following sections.

BIRA-IASB archive

Until April 2025, BIRA-IASB hosted an FTP archive for ozone CCI data products. The FTP facility was shut down and replaced by a WebDAV server in May 2025. All products were transferred to WebDAV.

Recommended method: connect via a WebDAV client (WinSCP, CyberDuck, ...)

- host : webdav.aeronomie.be
- port : 443
- user : [o3_cci_public](#)
- password : not required (*leave empty*)
- remote directory : [/guest/o3_cci/webdata](#)
(*important: don't forget to specify this directory, otherwise you will encounter a connection error*)

Alternative method: direct link (browser)

https://o3_cci_public:@webdav.aeronomie.be/guest/o3_cci/webdata

CDS - Copernicus Climate Data Store

<https://cds.climate.copernicus.eu/datasets/satellite-ozone-v1>

AERIS

<https://iasi.aeris-data.fr>

CEDA archive

<https://archive.ceda.ac.uk>

CDSE - Copernicus Data Space Ecosystem

<https://dataspace.copernicus.eu/explore-data/data-collections/sentinel-data/sentinel-5p>

TEMIS

<https://www.temis.nl/protocols/O3global.php>



3 Total ozone column data records

Table 3.1: List of level-2 total ozone column products. Horizontal resolution is expressed as along-track x across-track. Highlighted data sets are new products (orange) or have been improved (green) as part of Phase 2 of the Ozone_cci+ project (2022-2025). Products that include data from operational missions have no specified end time since the time coverage will be extended.

Sensor	Product / version	Data provider	Time coverage	Time resolution	Horizontal coverage	Horizontal resolution (km)	Data archive
GOME	GODFIT v4	BIRA	1995-2011	orbits	global	320 x 40	BIRA
SCIAMACHY	GODFIT v4	BIRA	2002-2012	orbits	global	30 x 60	BIRA
OMI	GODFIT v4	BIRA	2004-	orbits	global	24 x 13	BIRA
GOME-2A	GODFIT v4	BIRA	2007-2021	orbits	global	80 x 40	BIRA
GOME-2B	GODFIT v4	BIRA	2013-	orbits	global	80 x 40	BIRA
GOME-2C	GODFIT v4	BIRA	2019-	orbits	global	80 x 40	BIRA
TROPOMI	GODFIT v4	BIRA	2018-	orbits	global	3.5 x 5.5	CDSE
OMPS-NM / SNPP	GODFIT v4	BIRA	2012-	orbits	global	50 x 50	BIRA
IASI-A	ULB-LATMOS CDR V1.2.1 S2	ULB / LATMOS	2007-2021	orbits	global	12 diameter	AERIS
IASI-B	ULB-LATMOS CDR V1.2.1 S2	ULB / LATMOS	2013-	orbits	global	12 diameter	AERIS
IASI-C	ULB-LATMOS ICDR V6.5.0 S2	ULB / LATMOS	2019-	orbits	global	12 diameter	AERIS



Table 3.2: List of level-3 total ozone column products. Horizontal resolution is expressed as latitude x longitude. Highlighted data sets are new products (orange) or have been improved (green) as part of Phase 2 of the Ozone_cci+ project (2022-2025). Products that include data from operational missions have no specified end time since the time coverage will be extended.

Product / version	Sensor(s)	Data provider	Time coverage	Time resolution	Horizontal coverage	Horizontal resolution	Data archive
GOME fv0100	GOME	DLR / BIRA	1995-2011	monthly	global	1° x 1°	CDS
SCIAMACHY fv0100	SCIAMACHY	DLR / BIRA	2002-2012	monthly	global	1° x 1°	CDS
OMI fv0200	OMI	DLR / BIRA	2004-	monthly	global	1° x 1°	CDS
GOME-2A fv0100	GOME-2A	DLR / BIRA	2007-2021	monthly	global	1° x 1°	CDS
GOME-2B fv0200	GOME-2B	DLR / BIRA	2013-	monthly	global	1° x 1°	CDS
GOME-2C fv0100	GOME-2C	DLR / BIRA	2019-	monthly	global	1° x 1°	CDS
TROPOMI fv0100	TROPOMI	DLR / BIRA	2018-	monthly	global	1° x 1°	CDS
OMPS fv0100	OMPS-NM / SNPP	DLR / BIRA	2012-	monthly	global	1° x 1°	CDS
GTO-ECV fv2000, fv2100	GOME, SCIAMACHY, OMI, GOME-2A, GOME-2B, GOME-2C, TROPOMI	DLR / BIRA	1995-	monthly	global	1° x 1°	CDS
IASI-A fv0004	IASI-A	LATMOS / ULB	2007-2021	monthly	global	1° x 1°	CDS
IASI-B fv0004	IASI-B	LATMOS / ULB	2013-	monthly	global	1° x 1°	CDS
IASI-C fv0004	IASI-C	LATMOS / ULB	2020-	monthly	global	1° x 1°	CDS



Table 3.3: List of level-4 total ozone column products. Horizontal resolution is expressed as latitude x longitude. Highlighted data sets are new products (orange) or have been improved (green) as part of Phase 2 of the Ozone_cci+ project (2022-2025). Products that include data from operational missions have no specified end time under since the time coverage will be extended.

Product / version	Sensors	Data provider	Time coverage	Time resolution	Horizontal coverage	Horizontal resolution	Data archive
MSR2 fv23, fv24, fv25	BUV, TOMS, SBUV, GOME, SCIAMACHY, OMI, GOME-2A, GOME-2B, GOME-2C, TROPOMI, OMPS-NM / SNPP, Dobson	KNMI	1960-	monthly	global	0.5° x 0.5°	TEMIS , CDS



4 Tropospheric ozone column data records

Table 4.1: List of level-3 tropospheric ozone column products. Horizontal resolution is expressed as latitude x longitude. Highlighted data sets are new products (orange) or have been improved (green) as part of Phase 2 of the Ozone_cci+ project (2022-2025). Products that include data from operational missions have no specified end time since the time coverage will be extended.

Product / version	Sensor(s)	Data provider	Time coverage	Time resol.	Horiz. coverage	Horiz. resol.	Vertical coverage†	Data archive
GTTO-ECV v6lc, v6hc	GOME, SCIAMACHY, OMI, GOME-2A, GOME-2B, GOME-2C, TROPOMI	DLR / BIRA	1995-	monthly	20°S – 20°N	1° x 1°	sfc – 270 hPa, sfc – 200 hPa	BIRA
GOME-2A CHORA-CCD v7.1	GOME-2A	UBR	2007-2014	monthly	20°S – 20°N	2.5° x 5°	sfc – 270 hPa	BIRA
GOME-2B CHORA-CCD v7.1	GOME-2B	UBR	2013-	monthly	20°S – 20°N	2.5° x 5°	sfc – 270 hPa	BIRA
GOME-2C CHORA-CCD v7.1	GOME-2C	UBR	2020-	monthly	20°S – 20°N	2.5° x 5°	sfc – 270 hPa	BIRA
TROPOMI CHORA-CCD v7.0	TROPOMI	UBR	2018-	monthly	20°S – 20°N	2.5° x 5°	sfc – 270 hPa	BIRA
OMI-LIMB v1	OMI, LIMB-HIRES	FMI / BIRA	2004-	monthly	global	1° x 1°	sfc – lrt	BIRA
GTO-LIMB v1	GTO-ECV, LIMB-HIRES	FMI / DLR	2004-	monthly	global	1° x 1°	sfc – lrt	BIRA
SCIAMACHY-LNM v3aoc	SCIAMACHY	UBR	2002-2012	monthly	60°S – 60°N	1° x 1°	sfc – lrt	BIRA
OMPS-LNM v2aoc	OMPS/SNPP	UBR	2012-	monthly	60°S – 60°N	1° x 1°	sfc – lrt	BIRA
IASI-A fv0004	IASI-A	LATMOS / ULB	2007-2021	monthly	global	1° x 1°	0-6 km	CDS
IASI-B fv0004	IASI-B	LATMOS / ULB	2013-	monthly	global	1° x 1°	0-6 km	CDS
IASI-C fv0004	IASI-C	LATMOS / ULB	2020-	monthly	global	1° x 1°	0-6 km	CDS

† sfc : surface; lrt : lapse-rate (thermal) tropopause.



5 Nadir ozone profile data records

Table 5.1: List of level-2 nadir ozone profile products. Horizontal resolution is expressed as along-track x across-track. Data from sensors indicated in red are in prototype phase and will not be publicly released. Highlighted data sets are new products (orange) or have been improved (green) as part of Phase 2 of the Ozone_cci+ project (2022-2025). Products that include data from operational missions have no specified end time since the time coverage will be extended.

Sensor	Product / version	Data provider	Time coverage	Time resol.	Horiz. coverage	Horizontal resol. (km)	Vertical coverage	Vertical resolution	Data archive
GOME	RAL v3.01	RAL	1995-2011	orbits	global	320 x 40	0-80 km	4-6 km	CEDA
SCIAMACHY	RAL v3.00	RAL	2002-2012	orbits	global	240 x 30	0-80 km	4-6 km	CEDA
OMI	under development	RAL	2004-	orbits	global	50 x 50	0-80 km	4-6 km	planned in 2025
GOME-2A	RAL v3.03	RAL	2007-2021	orbits	global	160 x 160	0-80 km	4-6 km	CEDA
GOME-2B	under development	RAL	2013-	orbits	global	160 x 160	0-80 km	4-6 km	planned in 2025
GOME-2C	under development	RAL	2020-	orbits	global	160 x 160	0-80 km	4-6 km	planned in 2025
TROPOMI	under development	RAL	2018-	orbits	global	15 x 38	0-80 km	4-6 km	planned in 2025
IASI-A	ULB-LATMOS CDR V1.2.1 S2	ULB / LATMOS	2008-2019	orbits	global	12 diameter	0-60 km	1 km	AERIS
IASI-B	ULB-LATMOS CDR V1.2.1 S2	ULB / LATMOS	2019-	orbits	global	12 diameter	0-60 km	1 km	AERIS
IASI-C	ULB-LATMOS ICDR V6.5.0 S2	ULB / LATMOS	2019-	orbits	global	12 diameter	0-60 km	1 km	AERIS



Table 5.2: List of level-3 nadir ozone profile products. Horizontal resolution is expressed as latitude x longitude. Highlighted data sets are new products (orange) or have been improved (green) as part of Phase 2 of the Ozone_cci+ project (2022-2025). Products that include data from operational missions have no specified end time since the time coverage will be extended.

Product / version	Sensor(s)	Data provider	Time coverage	Time resol.	Horiz. coverage	Horizontal resol.	Vertical coverage	Vertical resolution	Data archive
GOME fv6	GOME	KNMI / RAL	1995-2011	monthly	global	1° x 1°	0-80 km	4-6 km	CDS
SCIAMACHY fv6	SCIAMACHY	KNMI / RAL	2002-2012	monthly	global	1° x 1°	0-80 km	4-6 km	CDS
OMI fv6, fv7	OMI	KNMI / RAL	2004-	monthly	global	1° x 1°	0-80 km	4-6 km	CDS
GOME-2A fv6, fv7	GOME-2A	KNMI / RAL	2007-2021	monthly	global	1° x 1°	0-80 km	4-6 km	CDS
GOME-2B fv7, fv8, fv9	GOME-2B	KNMI / RAL	2013-	monthly	global	1° x 1°	0-80 km	4-6 km	CDS
GOP-ECV v3	GOME, SCIAMACHY, OMI, GOME-2A, GOME-2B	DLR / KNMI	1995-2021	monthly	global	5° x 5°	0-80 km	4-6 km	BIRA
IASI MG-FORLI v1.0	IASI-A, IASI-B, IASI-C	ULB / LATMOS	2008-	daily	global	1° x 1°	0-40 km	1 km	BIRA



6 Limb ozone profile data records

Table 6.1: List of level-2 limb ozone profile products developed and generated by the CCI team (and its former members). Highlighted data sets are new products (orange) or have been improved (green) as part of Phase 2 of the Ozone_cci+ project (2022-2025). Products that include data from operational missions have no specified end time since the time coverage will be extended.

Sensor	Product / version	Data provider	Time coverage	Time resol.	Horiz. coverage	Vertical coverage	Vertical resolution	Data archive
OSIRIS	v7.3	USask	2001-	orbits	global	10-59 km	1 km	BIRA
GOMOS	ALGOM2s v1	FMI	2002-2011	orbits	global	10-105 km	1 km	BIRA
GOMOS	GBL v1.2	FMI	2002-2012	orbits	global	19-59 km	1 km	BIRA
MIPAS	v8	IMK-IAA	2002-2012	orbits	global	6-70 km	1 km	BIRA
SCIAMACHY	v3.5	UBR	2002-2012	orbits	global	5-65 km	1 km	BIRA
ACE-FTS	v4.1-v4.2	UoT	2004-	orbits	global	6-94 km	1 km	BIRA
OMPS-LP / SNPP	USask2D v1.3.0	USask	2012-	orbits	global	8-58 km	1 km	BIRA
OMPS-LP / SNPP	UBR v4.1	UBR	2012-	orbits	global	9-61 km	1 km	BIRA
OMPS-LP / N21	UBR v1.1	UBR	2023-	orbits	global	9-61 km	1 km	BIRA

Table 6.2: List of level-2 limb ozone profile products by teams external to CCI. Highlighted data sets in green were updated by the data providers during the course of Phase 2 of the Ozone_cci+ project (2022-2025). Products that include data from operational missions have no specified end time since the time coverage will be extended.

Sensor	Product / version	Data provider	Time coverage	Time resol.	Horiz. coverage	Vertical coverage	Vertical resolution	Data archive
SAGE II	v7.0	NASA	1984-2005	orbits	global	5-65 km	1 km	on request
HALOE	v19	NASA	1991-2005	orbits	global	500-0.05 hPa	1-3 km	on request
Aura MLS	v5	NASA	2004-	orbits	global	300-0.02 hPa	1-3 km	on request
SABER	v2.0	NASA	2002-	orbits	global	250-0.001 hPa	1-3 km	on request
SAGE III / M3M	v4	NASA	2002-2005	orbits	global	5-65 km	1 km	on request
SAGE III / ISS	v5.3	NASA	2017-	orbits	global	5-65 km	1 km	on request
POAM III	v4.0	NRL	1998-2005	orbits	global	5-60 km	1 km	on request



Table 6.3: List of level-3 limb ozone profile products. Highlighted data sets are new products (orange) or have been improved (green) as part of Phase 2 of the Ozone_cci+ project (2022-2025). Products that include data from operational missions have no specified end time since the time coverage will be extended.

Product / version	Sensor(s)	Data provider	Time coverage	Time resol.	Horiz. coverage	Horiz. resolution	Vertical coverage	Vertical resol.	Data archive
GOMOS fv1	GOMOS	UBR / FMI	2002-2011	monthly	global	10° lat	10-105 km	1 km	CDS
MIPAS fv2	MIPAS	UBR / FMI	2002-2012	monthly	global	10° lat	6-68 km	1 km	CDS
SCIAMACHY fv1	SCIAMACHY	UBR / FMI	2002-2012	monthly	global	10° lat	5-65 km	1 km	CDS
OSIRIS fv3	OSIRIS	UBR / FMI	2001-	monthly	global	10° lat	10-59 km	1 km	CDS
SMR fv1	SMR	UBR / FMI	2001-2014	monthly	global	10° lat	15-65 km	1 km	CDS
ACE-FTS fv3	ACE-FTS	UBR / FMI	2004-	monthly	global	10° lat	6-94 km	1 km	CDS
OMPS USask fv3	OMPS/SNPP USask	UBR / FMI	2012-	monthly	global	10° lat	7-58 km	1 km	CDS
OMPS UBR fv2	OMPS/SNPP UBR	UBR / FMI	2012-	monthly	global	10° lat	7-58 km	1 km	CDS
SAGE II fv1	SAGE II	UBR / FMI	1984-2005	monthly	global	10° lat	5-65 km	1 km	CDS
SAGE III / ISS fv2	SAGE III/ISS	UBR / FMI	2017-	monthly	global	10° lat	5-65 km	1 km	CDS
HALOE fv1	HALOE	UBR / FMI	1991-2005	monthly	global	10° lat	500-0.02 hPa	1-3 km	CDS
SABER fv2	SABER	UBR / FMI	2002-	monthly	global	10° lat	50-0.1 hPa	1-3 km	CDS
Aura MLS fv3	Aura MLS	UBR / FMI	2004-	monthly	global	10° lat	500-0.02 hPa	1-3 km	CDS



Product / version	Sensor(s)	Data provider	Time coverage	Time resol.	Horiz. cover.	Horiz. resol.	Vertical coverage	Vertical resol.	Data archive
SAGE-CCI-OMPS+ fv10	SAGE II, POAM III, OSIRIS, GOMOS, MIPAS, SCIAMACHY, ACE-FTS, OMPS/SNPP, SAGE III/ISS	FMI	1984-	monthly	global	10° lat	10-50 km	1 km	BIRA , CDS
MEGRIDOP fv6	OSIRIS, GOMOS, MIPAS, SCIAMACHY, OMPS/SNPP, Aura MLS	FMI	2001-	monthly	global	10° x 20°	10-50 km	1 km	BIRA , CDS
LIMB-HIRES v1	OSIRIS, GOMOS, MIPAS, SCIAMACHY, ACE-FTS, Aura MLS, OMPS/SNPP, SAGE III/ISS	FMI	2004-	daily	global	1° x 1°	900-0.02 hPa	1.25 km	BIRA
SCIA-OMPS v4.1	SCIAMACHY, OMPS/SNPP	UBR	2002-	monthly	global	5° x 20°	8.6-64.2 km	3.3 km	BIRA
SAGE-SCIA-OMPS v4.1	SAGE II, SCIAMACHY, OMPS/SNPP	UBR	1985-	monthly	global	10° lat	8.5-60.5 km	1 km	BIRA