

Water Vapour Climate Change Initiative (WV_cci) - CCI+ Phase 1



Climate Research Data Package (CRDP)

Ref: D4.2

Date: 13 October 2020

Issue: 2.1

For: ESA / ECSAT

Ref: CCIWV.REP.015



UNIVERSITY OF TORONTO



UNIVERSITY OF LEICESTER

UNIVERSITÉ DE VERSAILLES
SAINT-QUENTIN-EN-YVELINES



Science & Technology Facilities Council
Rutherford Appleton Laboratory

Universidade de Vigo

This Page is Intentionally Blank

Project : **Water Vapour Climate Change Initiative (WV_cci) - CCI+ Phase 1**

Document Title: **Climate Research Data Package (CRDP)**

Reference : **D4.2**

Issued : **13 October 2020**

Issue : **2.1**

Client: **ESA / ECSAT**

Author(s) : Michaela Hegglin (UoR), Olaf Danne (BC), Marc Schröder (DWD), Hao Ye (UoR)

Copyright : Water_Vapour_cci Consortium and ESA

Document Change Log

Issue/ Revision	Date	Comment
1.0	13.06.2019	Initial issue
1.1	31.07.2020	Update wrt latest dataset versions
2.0	07.08.2020	Second issue
2.1	13.10.2020	Addressed v2.0 RIDs

TABLE OF CONTENTS

1. INTRODUCTION	7
1.1 Purpose and Scope	7
2. WV_CCI TCWV Climate Data Records	8
3. WV_CCI VRWV Climate Data Records	10
APPENDIX 1: REFERENCES	13
APPENDIX 2: GLOSSARY	14

INDEX OF TABLES

Table 2-1: Overview of WV_cci TCWV CDR-1 (land only) L3 daily and monthly products. All products were generated in 0.05 and 0.5-deg resolution	8
Table 2-2: Same as Table 2-1, but for CDR-2 (land + ocean) products	9
Table 3-1: Overview of WV_cci VRWV single instrument CDRs. The table includes information on the sensor, data version number (Vers. No.), Processing level (Proc. Level), responsible provider (Resp. Prov.), temporal resolution (Temp. Res.), vertical resolution, time period, general comments, and release date.....	10
Table 3-2: Overview of final WV_cci VRWV CDR-3 and CDR-4 products. The table includes information on the sensor, data version number (Vers. No.), Processing level (Proc. Level), responsible provider (Resp. Prov.), temporal resolution (Temp. Res.), vertical resolution, time period, general comments, and release date.....	12

This Page is Intentionally Blank

1. INTRODUCTION

1.1 Purpose and Scope

This document provides a log of the different water vapour (WV) data versions produced within the first year of the WV_cci project during phase 1, along with a short summary of their main characteristics and the data archive location from where the data can be retrieved. The WV_cci offers both total column water vapour (TCWV) and vertically resolved water vapour (VRWV) climate data records, listed in Sections 2 and 3, respectively.

2. WV_CCI TCWV Climate Data Records

The WV_cci TCWV Climate Data Record made available comprises global L3 daily and monthly merged products between MERIS or MODIS_TERRA (which are data over land) and CM SAF HOAPS [1] (data over the ocean).

Table 2-1 and Table 2-2 list the latest versions, periods and release dates of the provided WV_cci TCWV CDR-1 and CDR-2. The datasets are on total ~40 GB in size.

CDR-1 and CDR-2 are not yet publicly available for users. The datasets listed below have been made available to the WV_cci team (i.e. DWD) through an FTP server hosted at Brockmann Consult.

Table 2-1: Overview of WV_cci TCWV CDR-1 (land only) L3 daily and monthly products¹. All products were generated in 0.05 and 0.5-deg resolution

Sensors	Version	Period	Release Date	Comments
MERIS	2.0	01/2010–04/2012	12/2019	'Dataset 2' was released as v2.0 following project plan. A reprocessed subset was released as v2.2, which contains further improvements and fixes. As agreed by the partners, v2.2 (which covers only the two months 07/2011 and 07/2016) was used for validation purposes.
	2.2	07/2011	04/2020	
MERIS + MODIS_TERRA	2.0	01/2011–04/2012	12/2019	
	2.2	07/2011	04/2020	
MODIS_TERRA	2.0	01/2011–12/2012 01/2015–12/2016	12/2019	
	2.2	07/2011 07/2016	04/2020	
OLCI	2.0	04/2016–12/2017	12/2019	
	2.2	07/2016	04/2020	
OLCI + MODIS_TERRA	2.0	04/2016–12/2016	12/2019	
	2.2	07/2011	04/2020	

¹ The monthly L3 products were not part of the initially agreed products. It was decided during the project to generate these as a useful add-on.

Table 2-2: Same as Table 2-1, but for CDR-2 (land + ocean) products

Sensors	Version	Period	Release Date	Comments
MERIS + CMSAF_HOAPS	2.0	01/2010–04/2012	12/2019	'Dataset 2' was released as v2.0 following project plan. A reprocessed subset was released as v2.2, which contains further improvements and fixes. As agreed by the partners, v2.2 (which covers only the two months 07/2011 and 07/2016) was used for validation purposes.
	2.2	07/2011	04/2020	
MERIS + MODIS_TERRA + CMSAF_HOAPS	2.0	01/2011–04/2012	12/2019	
	2.2	07/2011	04/2020	
MODIS_TERRA + CMSAF_HOAPS	2.0	01/2011–12/2012 01/2015–12/2016	12/2019	
	2.2	07/2011 07/2016	04/2020	
OLCI + CMSAF_HOAPS	2.0	04/2016–12/2017	12/2019	
	2.2	07/2016	04/2020	
OLCI + MODIS_TERRA + CMSAF_HOAPS	2.0	04/2016–12/2016	12/2019	
	2.2	07/2011	04/2020	

3. WV_CCI VRWV Climate Data Records

The WV_cci VRWV Climate Data Records made available comprises harmonised level 2 data from a range of satellite limb sounders (SAGE II, UARS-MLS, HALOE, MIPAS, ACE-FTS, Aura-MLS, SMR, SCIAMACHY, ACE-MAESTRO, SMILES, HIRDLS, SOPHIE, POAM III, and SAGE III), both level 2 and level 3 IMS data, and the final WV_cci VRWV products CDR-3 and CDR-4.

Table 3-1 and Table 3-2 describe the single-instrument and multi-instrument data versions and their main characteristics, respectively, including information on the data archive used to make the data publicly available. Note, CDR-3 and CDR-4 are not yet publicly available for users. The datasets listed below have been made available to the WV_cci team through Microsoft Office One-Drive at UoR.

Table 3-1: Overview of WV_cci VRWV single instrument CDRs. The table includes information on the sensor, data version number (Vers. No.), Processing level (Proc. Level), responsible provider (Resp. Prov.), temporal resolution (Temp. Res.), vertical resolution, time period, general comments, and release date

Sensor	Vers. No.	Proc. Level	Resp. Prov.	Temp. Res.	Vertical Resolution	Period	Comments	Release Date
Data archive: KIT WAVAS_SAHAR open data repository: https://doi.org/10.5445/IR/1000093970								
Aura-MLS	v4.2	L2P	KIT	daily	<i>Products on pressure levels:</i> below 20 km: 1 km above 20 km: 2-3 km <i>Products on altitude grid:</i> 1 km	04/2004–12/2017	36.81 GiB	05/2019
ACE-FTS	v2.2 v3.5					08/2003–present	70.01 MiB	
ACE-MAESTRO	v31					08/2003–present	25.06 MiB	
SCIAMACHY	v3.01 v1.0 v4.2.1 v1.0					03/2002–04/2012	232.24 MiB	
SMR	v2.0 / v2.1					02/2001–present	920.2 KiB	
HALOE	v19					09/1991–11/2005	115.96 MiB	
SAGE II	v7.00					10/1984–08/2005	39.1 MiB	
POAM III	v4					03/1998–12/2005	48.88 MiB	
HIRDLS	v7					07/2004	2.81 GiB	

Sensor	Vers. No.	Proc. Level	Resp. Prov.	Temp. Res.	Vertical Resolution	Period	Comments	Release Date
						-03/2008		
SOFIE	v1.3					04/2007–present	101.02 MiB	
SMILES	v3.0.0 v2.9.2					09/2009–04/2010	152.51 MiB	
SAGE III	v4					05/2002–12/2005	26.94 MiB	
MIPAS-ESA	v6					03/2002–04/2012	4.62 GiB	
MIPAS-BOL	v2.3					03/2002–04/2012	1.95 GiB	
MIPAS-IMK	v20, v220/ 221, v522					03/2002–04/2012	10.65 GiB	
MIPAS-OXF	v1.30					03/2002–04/2012	3.08 GiB	
ILAS	v3 v3.01					12/2002–10/2003	5.95 MiB	
GOMOS	v6					03/2002–04/2012	23.81 MiB	
Data archive: JASMIN ftp-server accessible via http://dx.doi.org/10.5285/489e9b2a0abd43a491d5afdd0d97c1a4								
IMS	1	L2	RAL	daily	1–3 km through troposphere	June 2007–Dec 2016	50 GB/month	11/2018
IMS	1	L3	RAL	monthly	1–3 km through troposphere	June 2007–Dec 2016	150 MB/month	06/2019

Table 3-2: Overview of final WV_cci VRWV CDR-3 and CDR-4 products. The table includes information on the sensor, data version number (Vers. No.), Processing level (Proc. Level), responsible provider (Resp. Prov.), temporal resolution (Temp. Res.), vertical resolution, time period, general comments, and release date

Sensor	Vers. No.	Proc. Level	Resp. Prov.	Temp. Res.	Vertical Resolution	Period	Comments	Release Date
Data archive: UoR Microsoft Onedrive (link upon request)								
CDR-3	v0	L3	UoR	monthly	28 pressure levels between 300 and 0.1 hPa)	01/1985–12/2018	3.5 MB	06/2020 (for internal use only)
CDR-3	v1	L3	UoR	monthly	28 pressure levels between 300 and 0.1 hPa)	01/1985–12/2019	TBD	upcoming
Data archive: UoR Microsoft Onedrive (link upon request)								
CDR-4	v0	L3	UoR	monthly	26 pressure levels between 1000 and 10 hPa)	01/2010–12/2012	10 MB	07/2020 (for internal use only)
CDR-4	v1	L3	UoR	Monthly	26 pressure levels between 1000 and 10 hPa)	01/2010–12/2014	TBD	upcoming

APPENDIX 1: REFERENCES

[1]: CM SAF: Ocean Surface Fluxes and Atmospheric Parameters. EUMETSAT CM SAF Climate Monitoring, April 2019.

https://www.cmsaf.eu/EN/Overview/OurProducts/Hoaps/Hoaps_node.html

APPENDIX 2: GLOSSARY

Term	Definition
<i>ACE-FTS</i>	Atmospheric Chemistry Experiment - Fourier Transform Spectrometer
<i>ACE-MAESTRO</i>	Atmospheric Chemistry Experiment - Measurement of Aerosol Extinction in the Stratosphere and Troposphere Retrieved by Occultation
<i>BC</i>	Brockmann Consult
<i>CCI</i>	Climate Change Initiative
<i>CM SAF</i>	Satellite Application Facility on Climate Monitoring
<i>DARD</i>	Data Access Requirement Document
<i>ESA</i>	European Space Agency
<i>IMS</i>	Infrared Microwave Sounding
<i>JASMIN</i>	Joint Analysis System Meeting Infrastructure
<i>MERIS</i>	Medium Resolution Imaging Spectrometer
<i>MIPAS</i>	Michelson Interferometer for Passive Atmospheric Sounding
<i>MLS</i>	Microwave Limb Sounder
<i>MODIS</i>	Moderate Resolution Imaging Spectroradiometer
<i>OLCI</i>	Ocean and Land Colour Instrument
<i>SSM/I</i>	Special Sensor Microwave Imager
<i>SSMIS</i>	Special Sensor Microwave Imager Sounder
<i>TCWV</i>	Total Column of Water Vapour
<i>UoR</i>	University of Reading
<i>VRWV</i>	Vertically Resolved Water Vapour
<i>WV</i>	Water Vapour

End of Document