



The **Community Satellite Processing Package (CSPP)** supports the Direct Broadcast (DB) meteorological and environmental satellite community through the packaging and distribution of open source science software. We have recently added three NOAA-developed algorithms to our environmental data record (EDR) software suite, namely, **Microwave Integrated Retrieval System (MIRS)**, **NOAA Unique CrIS/ATMS Processing System (NUCAPS)** and, most recently, **Advanced Clear-Sky Processor for Oceans (ACSP0)**.

**REQUIREMENTS: SYSTEM + MISSION & ANCILLARY DATA**

		CSPP_MIRS	CSPP_NUCAPS	CSPP_ACSP0
<b>OPERATING SYSTEM</b>		CentOS-6 64-bit Linux (or other compatible 64-bit Linux distribution)*		
		1GB RAM + 1GB DISK	1GB RAM + 4GB DISK	8GB RAM + 5GB DISK
<b>Additional Software</b> (not provided with package)		X	LFTP; a sophisticated ftp/http client and a file transfer program supporting a number of network protocols** <a href="http://lftp.yar.ru/">http://lftp.yar.ru/</a>	
<b>SOFTWARE SITE</b>		<a href="http://cimss.ssec.wisc.edu/cspp/">http://cimss.ssec.wisc.edu/cspp/</a>		
<b>RELEASE DATE / VERSION</b> [ NOAA version ]		20-Mar-2014 / v1.0 [ v9.2 ]	23-Feb-2015 / v1.0 [ v1r0 ]	09-Apr-2015 / v1.0 [ v2.31 ]
<b>MISSION DATA</b>	NOAA-15 to NOAA-17	X	X	AV✓RR
	NOAA-18 & NOAA-19	AMSUA ✓+MHS	X	AV✓RR
	Metop-A & Metop-B	AMSUA ✓+MHS	X	AV✓RR
	Aqua & Terra	X	X	MO✓DIS
	Suomi-NPP	ATMS ✓	ATMS✓CrIS	V✓RS
<b>ANCILLARY DATA</b>	<b>SERVER SITE</b>	<a href="http://jpssdb.ssec.wisc.edu/cspp_v_2_0/ancillary/">http://jpssdb.ssec.wisc.edu/cspp_v_2_0/ancillary/</a>		
	National Center for Environmental Prediction (NCEP) Global Forecast System (GFS) 1 degree resolution	X	✓	✓
	Canadian Meteorological Center (CMC) 0.2 deg global sea surface temperature analysis	X	X	✓
<b>PROCESSES ARCHIVE DATA?</b> (i.e. non Direct Broadcast)		✓	✓	✓

\*Ubuntu works fine too

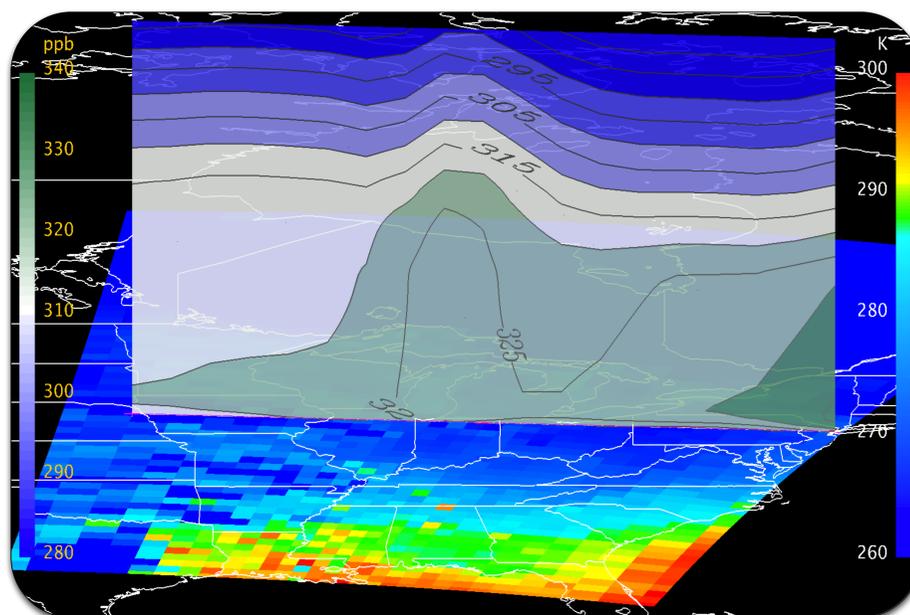
\*\*Only required for automatic fetching of remote ancillary data

**CSPP\_NUCAPS**

**SUBSET OF PRODUCT FIELDS**

EDR PRODUCT FIELDS		CCR PRODUCT FIELDS	
varName	long_name or description	varName	long_name or description
CH4_MR	Methane mixing ratio (ppb)	CrIS_FORs	The number of the current CrIS FOR for the current FOR
CO2	Carbon dioxide dry mixing ratio (ppm)	CrIS_Frequencies	Frequency at which the radiances are observed (cm-1)
CO_MR	Carbon monoxide mixing ratio (ppb)	CrIS_Radiances	CrIS Radiances for each FOR (mW/(m2 sr cm-1))
H2O_MR	Water vapor mixing ratio (g/g)	CrIS_View_Angle	CrIS View Angles for each FOR
HNO3_MR	Nitric Acid mixing ratio (ppb)	Quality_Flag	Quality flags for retrieval
Ice_Liquid_Flag	Ice liquid flag (0=water, 1=ice)		
Liquid_H2O_MR	Liquid water mixing ratio (g/g)		
N2O_MR	Nitrous Oxide mixing ratio (ppb)		
O3_MR	Ozone mixing ratio (ppb)		
SO2_MR	Sulfur Dioxide mixing ratio (ppb)		
Skin_Temperature	Skin temperature (Kelvin)		
Temperature	Temperature (Kelvin)		

CSPP\_NUCAPS output files are in netCDF4 format: EDR encoded into filenames indicates files containing all the retrieval (profile) products; CCR indicates cloud-cleared radiance product data. Detailed information on the products and metadata contained in the netCDF4 output files is provided in the NUCAPS External Users Manual.

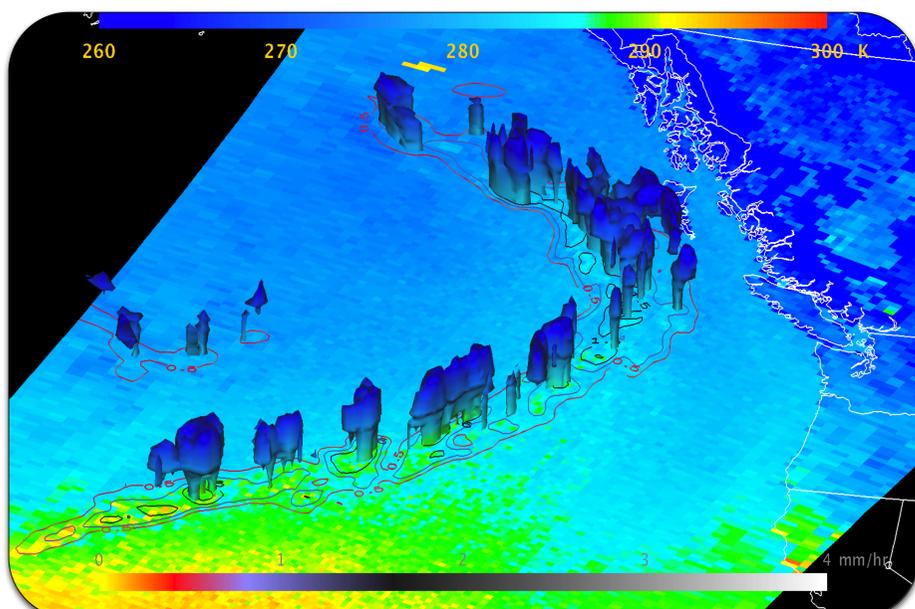


Suomi-NPP 2015-03-18 07:43Z: Skin Temperature (right scale) plus vertical cross-section (surface to 100 hPa) of N<sub>2</sub>O mixing ratio (left scale) showing local max. over southern tip of Lake Michigan and rising conc. over industrial NE.

**CSPP\_MIRS**

**SUBSET OF PRODUCT FIELDS**

IMAGE PRODUCT FIELDS		SOUNDER PRODUCT FIELDS	
varName	long_name or description	varName	long_name or description
BT	Channel Temperature (K)	ChiSqr	Convergency rate: <3-good,>10-bad
CLW	Cloud liquid Water (mm)	PClw	Cloud liquid water profile (mm)
GWP	Graupel Water Path (mm)	PGraupel	Graupel mass profile (mm)
LWP	Liquid Water Path (mm)	PRain	Rain mass profile (mm)
RR	Rain Rate (mm/hr)	PTemp	Temperature profile (K)
RWP	Rain Water Path (mm)	PVapor	Water vapor profile (g/kg)
Slice	Sea Ice Concentration (%)	Qc	Qc(0): 0-good, 1-usable with problem, 2-bad
Snow	Snow Cover (%)		
SnowGS	Snow Grain Size (mm)		
SWP	Snow Water Path (mm)	CSPP_MIRS output files are in netCDF4 format: IMG encoded into filenames indicates image products; SND indicates sounder products. Detailed information on the products and metadata contained in the netCDF4 output files is provided in the MIRS Interface Control Document.	
TPW	Total Precipitable Water (mm)		
TSkin	Skin Temperature (K)		

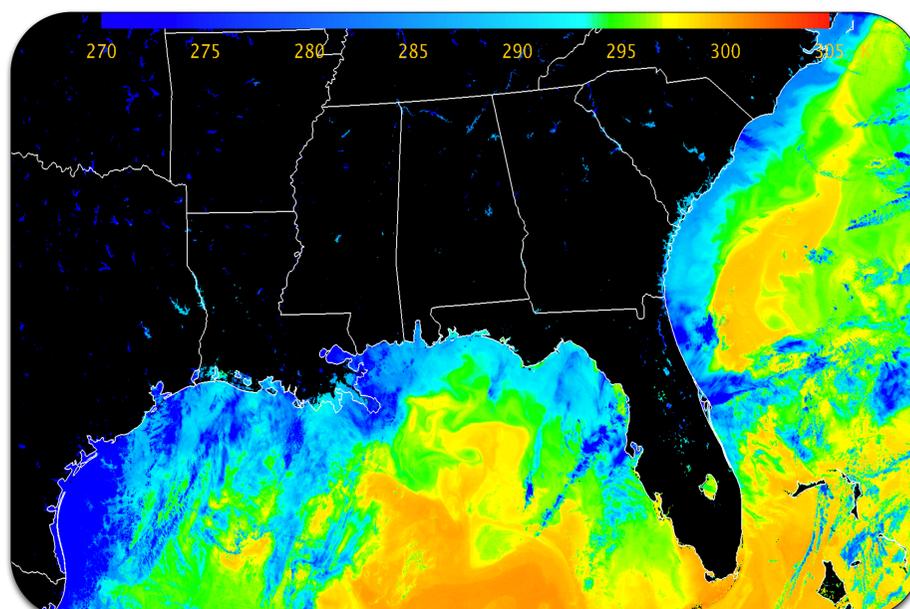


Suomi-NPP 2015-03-18 11:03Z: Skin Temperature (upper scale) with Rain Rate contours (lower scale) plus isosurface of rain mass profile at 0.05 g/kg (converted from PRain) colored by PTemp (upper scale).

**CSPP\_ACSP0**

**SUBSET OF PRODUCT FIELDS**

ACSP0 PRODUCT FIELDS		GHRSSST PRODUCT FIELDS	
varName	long_name or description	varName	long_name or description
acspo_mask	ACSP0 clear-sky mask and other flags: bit1 (0=radiance valid; 1=invalid); bit2 (0=night; 1=day); bit3 (0=sea; 1=land); bit4 (0=good quality data; 1=degraded quality due to twilight); bit5 (0=no glint; 1=glint); bit6 (0=no snow/ice; 1=snow/ice); bits7-8 (00=clear; 01=probably clear; 10=cloudy; 11=undef)	dt_analysis	Deviation from SST reference (K)
		l2p_flags	L2P common flags in bits 1-6 and data provider flags (from ACSP0 mask) in bits 9-16
		quality_level	quality level of SST pixel (0=invalid; 1,2=not_used; 3=cloudy; 4=probably_clear; 5= clear)
extra_byte_clear_sky_tests_results	Additional clear-sky test results	sea_surface_temperature	SST obtained by regression with buoy measurements (K)
individual_clear_sky_tests_results	Individual clear-sky tests results	sses_bias	Sensor Specific Error Statistic (SSES) bias estimate (K)
sst_regression	Retrieved sea surface temperature from regression (K)	sses_standard_deviation	Sensor Specific Error Statistic (SSES) standard deviation (K)
sst_reynolds	Reference (first-guess) SST from daily Reynolds (K)	CSPP_ACSP0 output files are in netCDF4 format: ACSP0 encoded into filenames indicates legacy format; GHRSSST indicates GHRSSST Data Specification 2.0 format. Detailed information on the products and metadata contained in the netCDF4 output files is provided in the ACSP0-VIIRS Version 2.31 External Users Manual.	
tpw_acspo	Total precipitable water derived from relative humidity (g/cm^2)		



Suomi-NPP 2015-03-18 07:40Z: Retrieved sea surface temperature from regression (K). Cloud masking (made possible by ACSP0 mask and other flag fields) has not been applied.