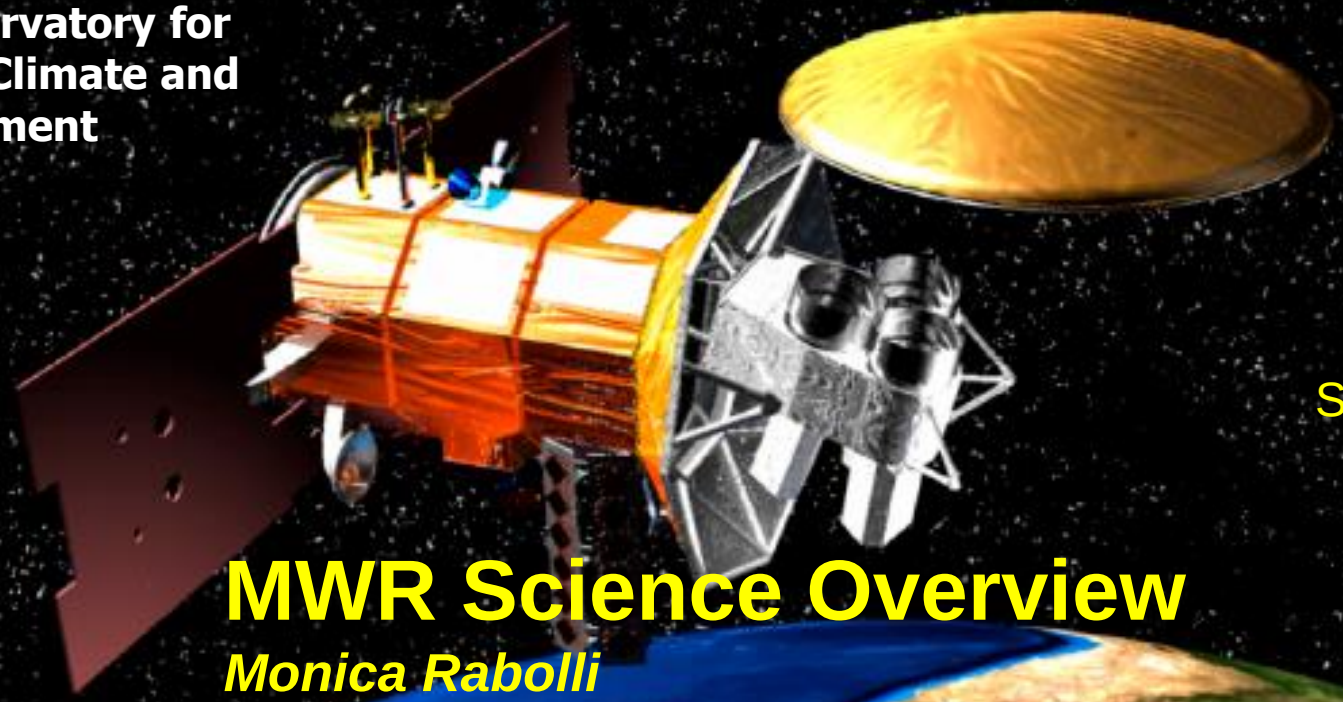
SAC-D/Aquarius

An Observatory for Ocean, Climate and Environment



Second Year

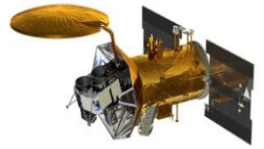
MWR Science Overview

Monica Rabolli
SAC-D Deputy PI

8th Aquarius/SAC-D Science Meeting
Buenos Aires – November 12-14, 2013

AQUARIUS/SAC-D

http://www.conae.gov.ar



Catálogo: SAC-D MWR - Windows Internet Explorer

http://catalogos2.conae.gov.ar/sac_d_mwr/

Google

Comisión Nacional de Acti... | Catálogo: SAC-D MWR

Página | Herramientas

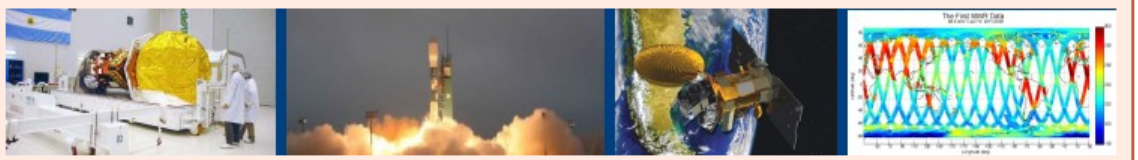
Comisión Nacional de Actividades Espaciales

Catálogo de Productos de niveles L1 y L2 de SAC-D/MWR (Radiómetro de Microondas)

<< Volver a Catálogos

Seleccione el Criterio de Búsqueda		
Fechas de Adquisición Disponibles:	10-Nov-2013	Buscar por Fecha
[Ver Manual Orbitas MWR] **Órbita:**	1 ◉ MWR ○ Aquarius	Buscar por Órbita
		Total de Archivos: **6888**

Documentación



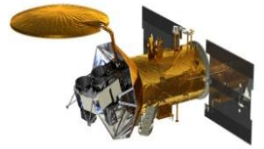
Comisión Nacional de Actividades Espaciales

Listo

Sitios de confianza | Modo protegido: desactivado

100%

http://www.conae.gov.ar



Documentos de SAC-D MWR - Windows Internet Explorer

http://catalogos2.conae.gov.ar/sac_d_mwr/documentacion.aspx

Search | AllinConvert | Convert Files | Measurement Converter | Translate | Facebook | 72°F Buenos Aires, Argentina

Favoritos | NOAA POES Auroral Activ... | Northern Lights holidays ... | Northern Lights holidays ... | The Knowledge where to ... | The Knowledge where to ... | IPSAT | Sitios sugeridos | Get more Add-ons

Documentos de SAC-D MWR

Página | Seguridad | Herramientas

Comisión Nacional de Actividades Espaciales

Catálogo de Productos de niveles L1 y L2 de SAC-D/MWR (Radiómetro de Microondas)

<< Volver a Menú Principal

Documentación de SAC-D MWR	
	Información General Catálogo de Productos L1A, L1B y L2 del sensor MWR (SACD/Aquarius) (Formato PDF - 686 KB.)
	General Information MWR L1A, L1B and L2 Products Catalog(SACD/Aquarius) (Formato PDF - 680 KB.)
	Manual de Orbitas MWR (Formato PDF - 5.99 MB.)
	Producto L1A: Referencia de Datos HDF5 - Versión 2 y Anteriores (Formato PDF - 153 KB.)
	Producto L1A: Referencia de Datos HDF5 - Versión 3 (Formato PDF - 148 KB.)
	Producto L1B: Referencia de Datos HDF5 - Versión 2 y Anteriores (Formato PDF - 119 KB.)
	Producto L1B: Referencia de Datos HDF5 - Versión 3 (Formato PDF - 117 KB.)
	Producto L2: Referencia de Datos HDF5 - Versión 3 y anteriores (Formato PDF - 113 KB.)
	Producto L2: Referencia de Datos HDF5 - Versión 4 (Formato PDF - 94 KB.)

Listo | Internet | Modo protegido: desactivado | 100%

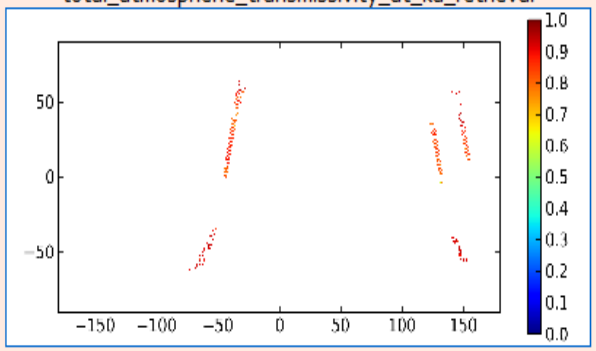
portada para la... | Skype™ [1] - m... | Nicolás Grilli | Fecha:=08/11/... | *variables*.zip ... | WS_2013 | iafe conicet ub... | Documentos d... | Agenda_Nov20... | ES | 03:46 p.m.

Catálogo: SAC-D MWR - Windows Internet Explorer

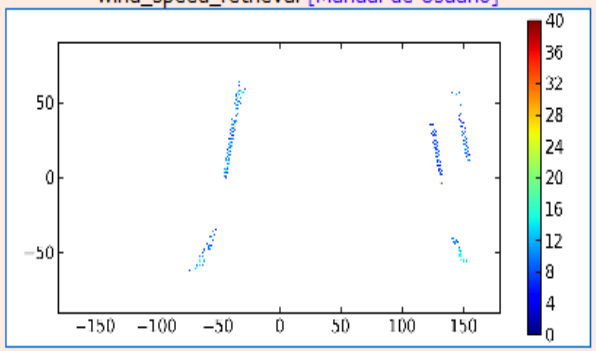
http://catalogos2.conae.gov.ar/sac_d_mwr/find.aspx?id=7589

Catálogo: SAC-D MWR

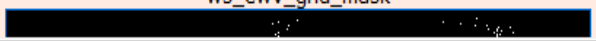
total_atmospheric_transmissivity_at_ka_retrieval

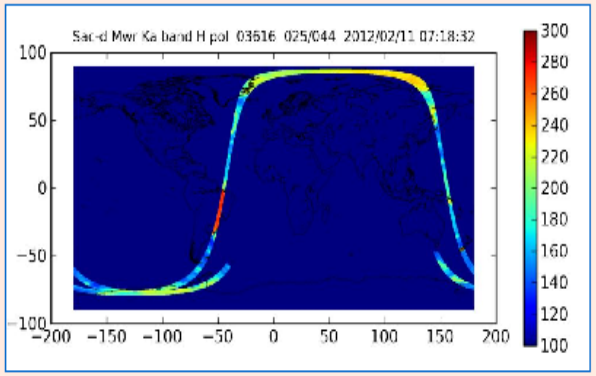


wind_speed_retrieval [Manual de Usuario]



ws_cwv_grid_mask





- MWR Level 2 products:
- Columnar water vapor
- Sea ice concentration
- Total Atmospheric transmisivity at ka
- Wind speed

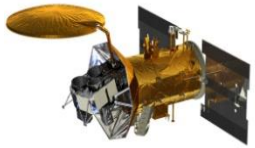
Listo

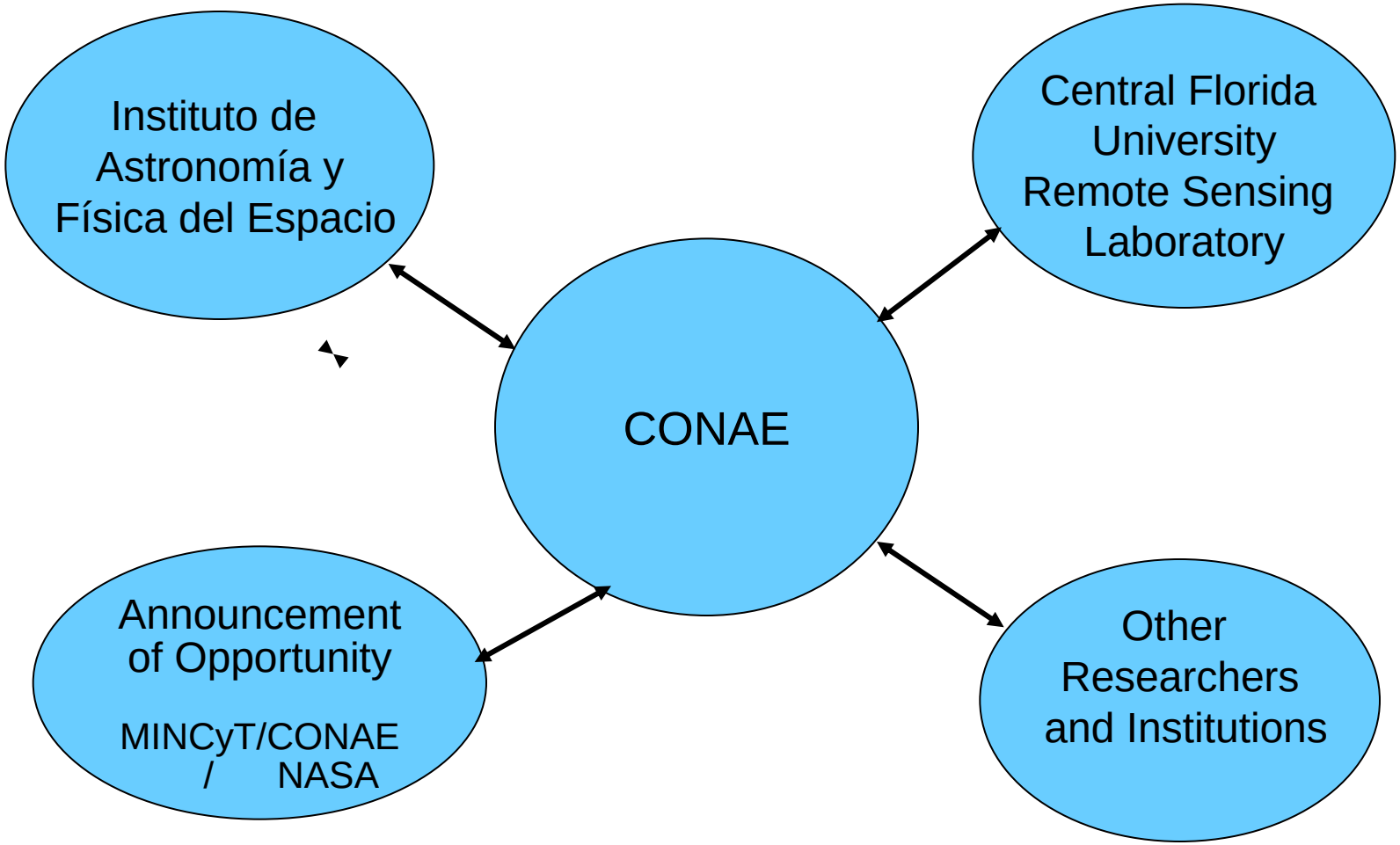
Sitios de confianza | Modo protegido: desactivado

100%

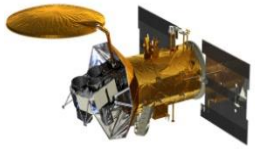
Bandeja ... 2 Expl... Microso... mwr - M... 8ws_ catalogo Internet ... Internet ... Catálog... 10:0

Working together





About calibration



MWR BRIGHTNESS TEMPERATURE ALGORITHM AND ON-ORBIT VALIDATION

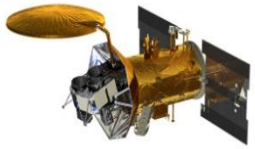
Jones L, Ghazi Z, Santos-Garcia A, Jacob M. M.

The MWR Calibration Team has developed an improved Microwave Radiometer (MWR) algorithm (version 6) to convert the radiometric counts to brightness temperature (Tb).

The poster shows recent results of on-orbit MWR/WindSat XCAL comparisons for the newest version 6 of the MWR counts to Tb algorithm, which includes a “counts linearization” procedure to correct for a small radiometer non-linearity.

XCAL validation results of the previous version 5 and the new version 6 algorithms are shown for one year of comparisons between MWR and WindSat.

About calibration too



CALIBRATION EFFORTS FOR MWR ON-BOARD SAC-D/AQUARIUS MISSION

Bruscantini, C. A. Maas, M. Grings, F. Karszenbaum, H.

In this study we report some of the calibration results obtained with two different techniques:

a land cross-calibration with Windsat and,

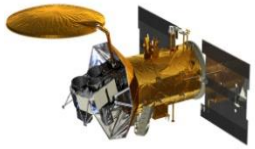
the Vicarious Cold calibration

Period: 2011-2012

version V5.0S of the MWR data.

Good stability properties and compares favorably to Windsat over land targets. Nevertheless, certain issues to be resolved are identified and a correction is proposed.

One more about calibration



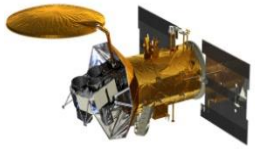
ASSESSMENT OF VERSION 6 MWR BRIGHTNESS TEMPERATURE CALIBRATION

Shannon Brown

The poster presents an assessment of the MWR brightness temperature calibration .

Results will be presented showing the quality of the version 6 MWR TB inter-beam calibration, absolute calibration relative to the on-Earth references and stability over time.

Applying MWR data to Aquarius



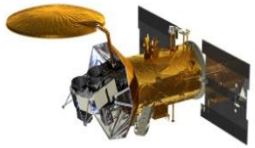
A ROUGHNESS CORRECTION ALGORITHM FOR AQUARIUS USING MWR

W. Linwood Jones, Yazan Hejazin, Salem El-Nimri

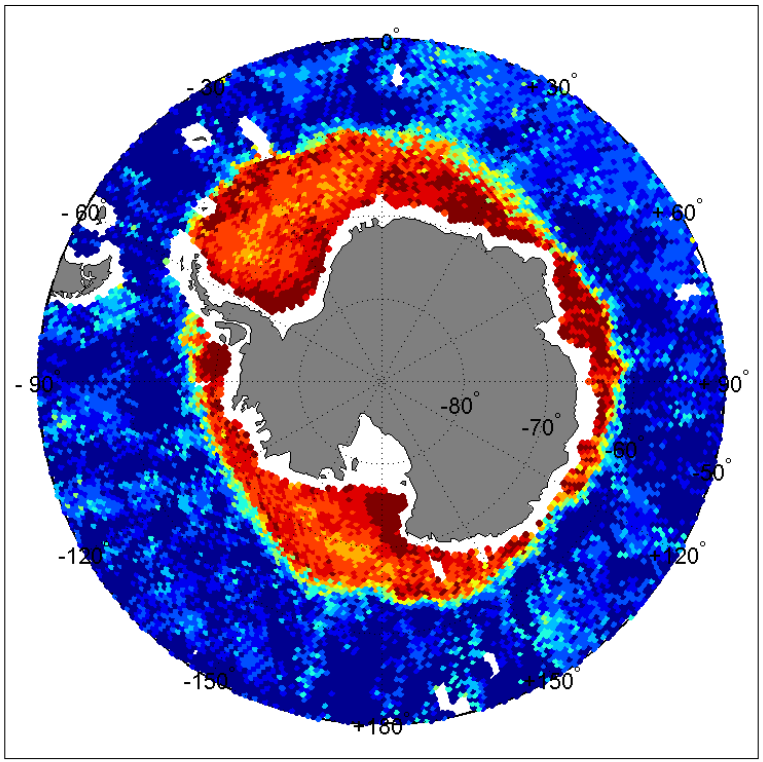
This paper presents an alternative independent approach for the AQ roughness correction, which is derived using simultaneous measurements from the CONAE Microwave Radiometer (MWR).

Simulated roughness errors will be introduced and techniques to characterize these errors will be evaluated. A prototype MWR roughness correction algorithm will be described and results presented, which illustrate the effect of applying the roughness correction algorithm on salinity retrievals.

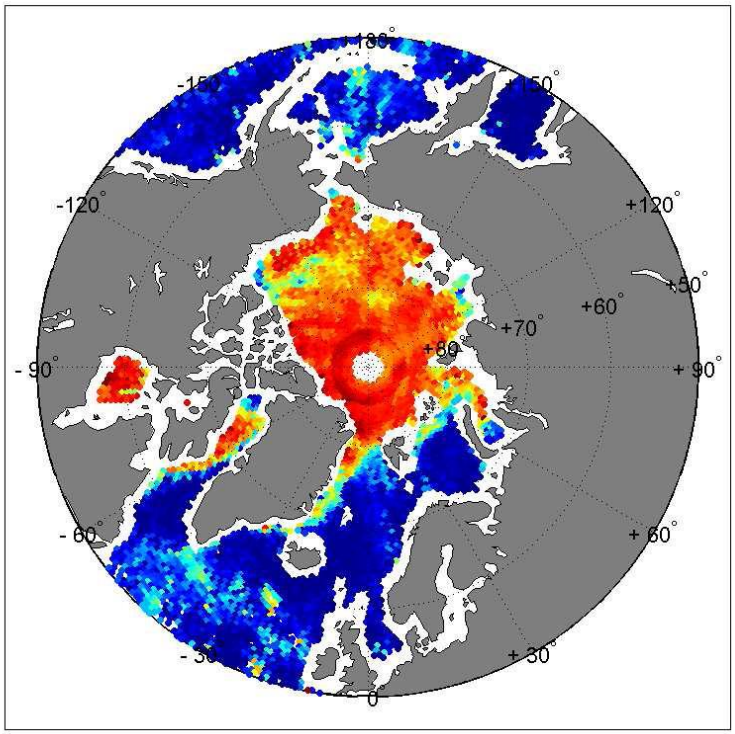
Applications: Sea Ice Concentration



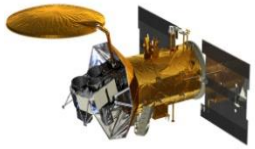
Monthly mode of IC, South Pole June2012



Weakly mean of IC, North Pole 01062012

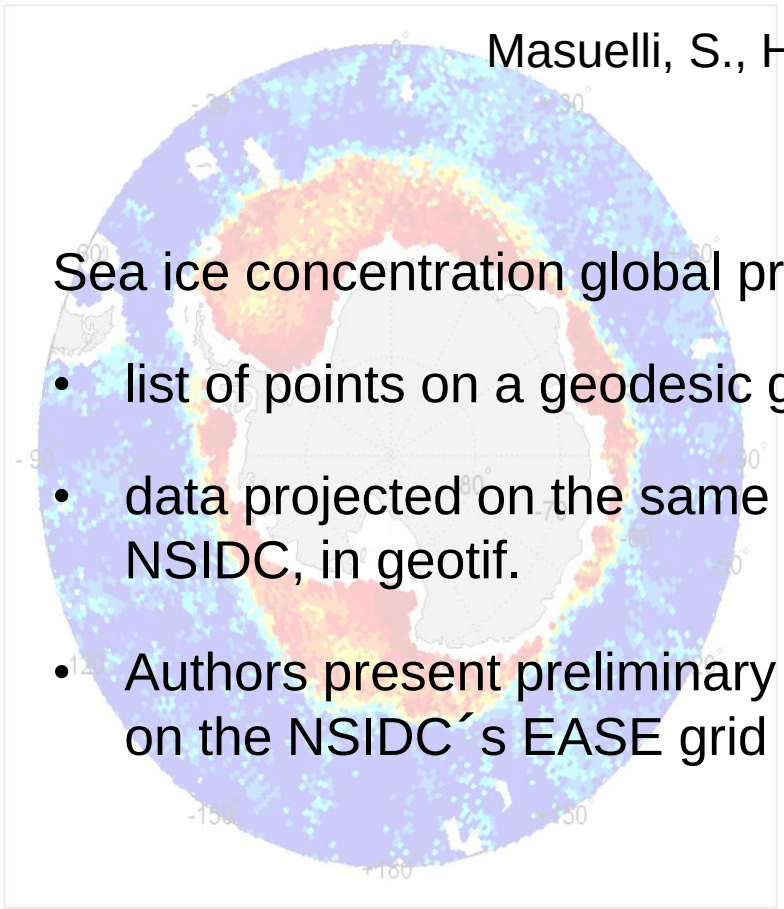


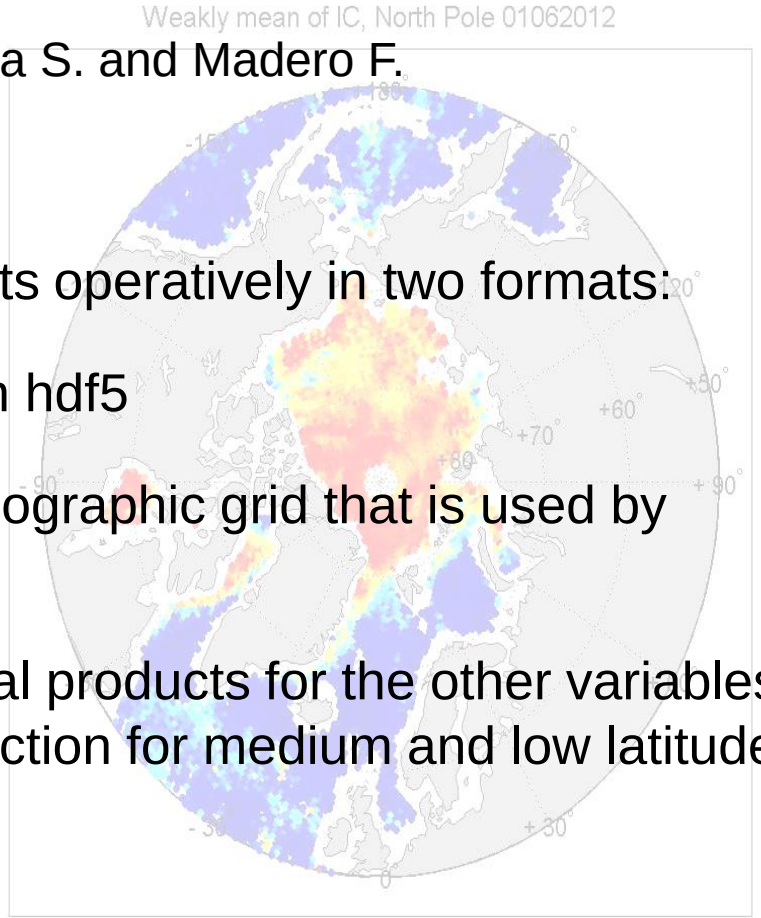
Applications: Sea Ice Concentration



THEORETICAL BASIS AND EXAMPLES OF GLOBAL SEA PRODUCTS (LEVEL 3) FOR MWR

Masuelli, S., Heredia S. and Madero F.

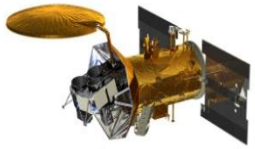




Sea ice concentration global products operatively in two formats:

- list of points on a geodesic grid in hdf5
- data projected on the same stereographic grid that is used by NSIDC, in geotif.
- Authors present preliminary global products for the other variables on the NSIDC´s EASE grid projection for medium and low latitudes.

Applications: Sea Ice Concentration



SOME MWR IC PRODUCT APPLICATIONS

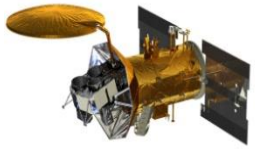
Salgado H., Carrascal C., Masuelli S., Barreira S.

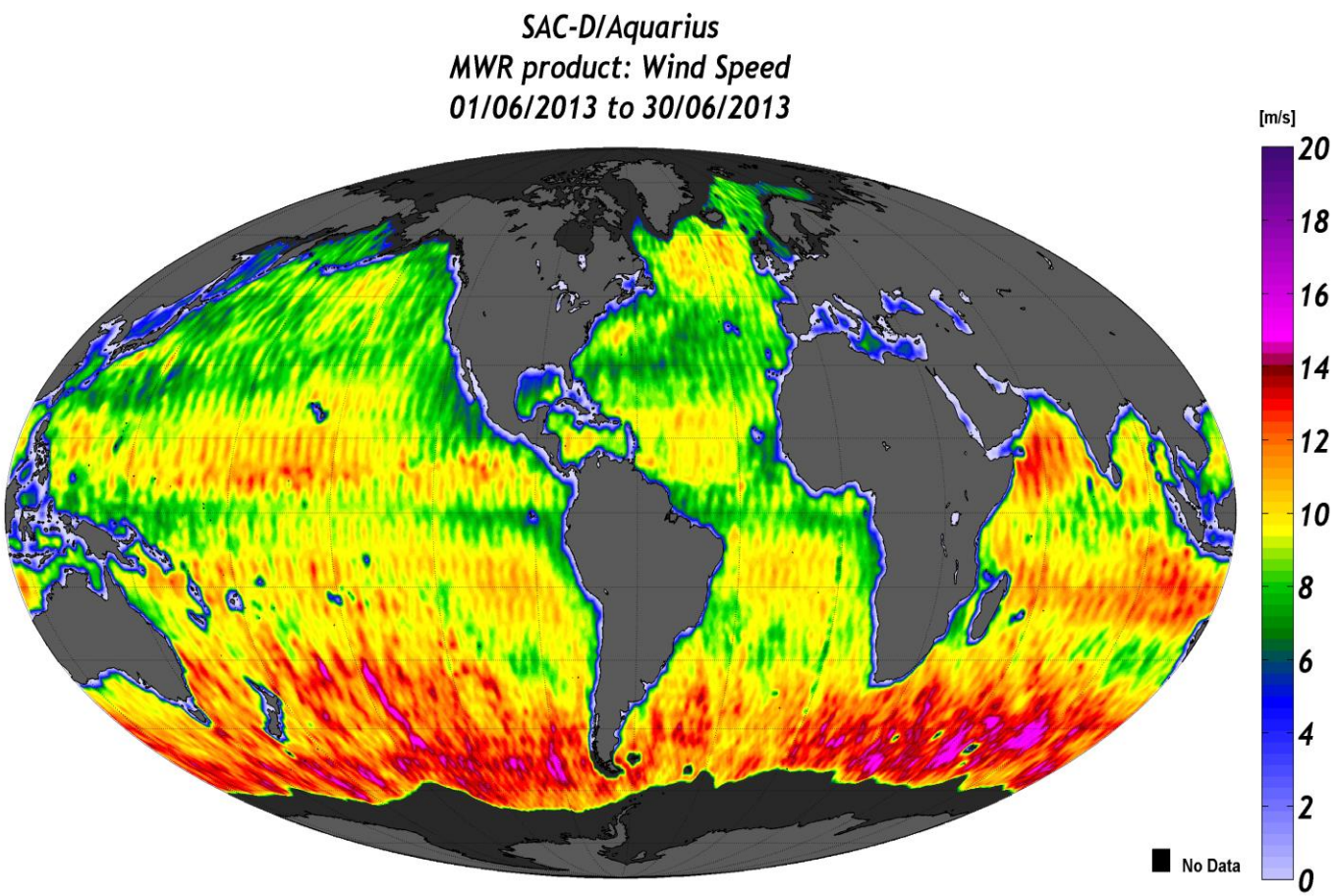
Using the IC product generated by CONAE

Meteorology Department of the Servicio de Hidrografía Naval (SHN) studies:

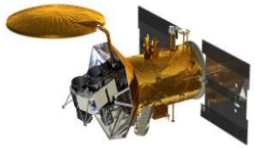
- covered area by marine ice
- ice edges,
- concentration rate .
- It is foreseen that such applications contribute to the climate change monitoring and the studies of sea ice spatial and time variability.

Applications: Wind Speed



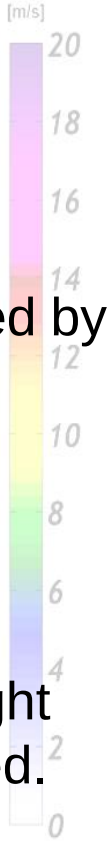


Applications: Wind Speed



MWR MARINE SURFACE WIND SPEED: L2 PRODUCT AND VALIDATION

Tauro, C.B. Hejazin, Y. Jacob, M.M. Jones, L.



CONAE and CFRS

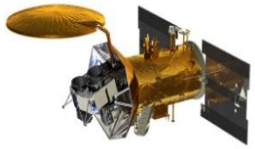
Actually used to generate Wind Speed L2 product distributed by CONAE and PODAAC.

It uses MWR brightness temperature at 36.5 GHz in both, horizontal and vertical polarizations and auxiliary data

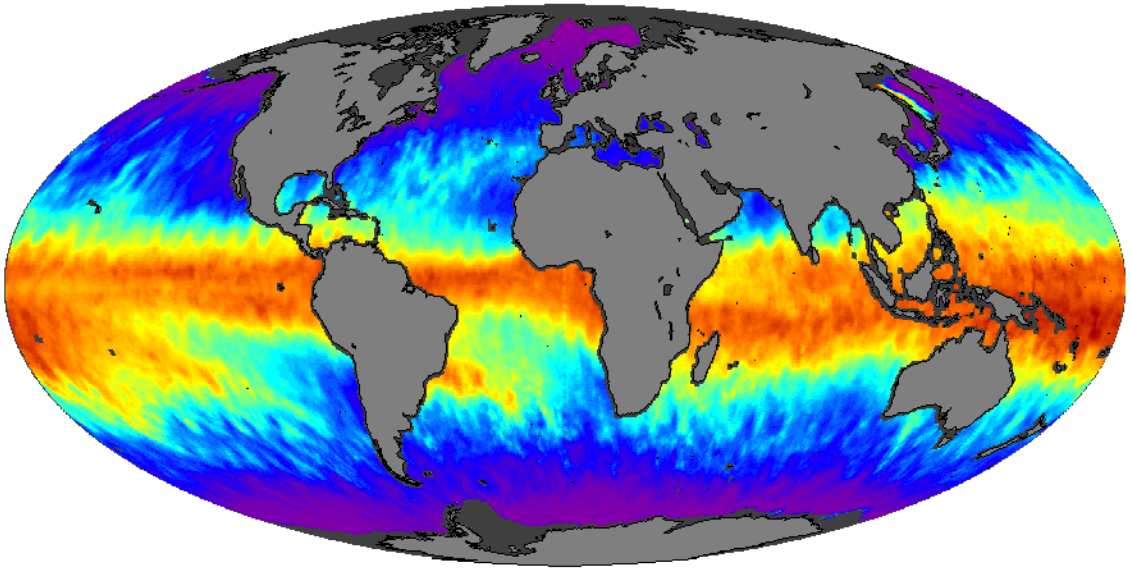
The neutral stability ocean surface wind speed at 10 m height and the atmospheric transmissivity at 36.5 GHz are retrieved.

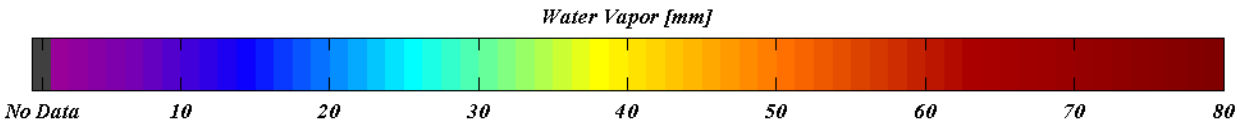
Authors present validation results using Windsat data for comparisons, based on statistical procedures.

Applications: Water Vapor Column



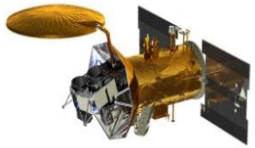
SAC-D/ Aquarius
MWR Water Vapor Column Average
March - 2013





CONAE

Applications: WV and WS



NEW WATER VAPOR AND WIND SPEED PROPOSAL ALGORITHMS FOR MWR MICROWAVE RADIOMETER

Heredia S. D. Masuelli S. Tauro C. B. Jones L. Hejazin Y.

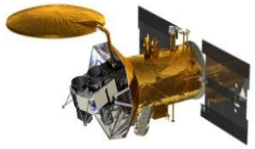
New proposed retrieval algorithms for Water Vapor and Wind Speed that improve the results obtained by currents algorithms (V5.0S) operatives at the CUSS of CONAE.

These proposed algorithms are based on the collocation between MWR and Windsat Microwave Radiometers and ancillary GDAS data.

Advantages:

- better performance in the runtime
- improvement in the estimation of WV and WS.

Applications: Rain Flag



RAIN FLAG PROPOSAL ALGORITHM FOR MWR MICROWAVE RADIOMETER

Heredia S. D. Masuelli S. Jones, L. Hejazin Y.

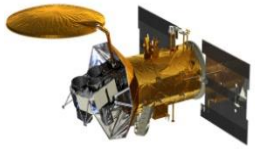
Excess Brightness Temperature is the difference between measured MWR Tb and simulated Tb in clear atmosphere conditions (no clouds) by using a Radiative Transfer Model (RTM).

Finding (for each MWR beam) the optimal Exc_Tb threshold from which if:

Exc_Tb exceeds this value it is a raining pixel

The obtained results for the calibration period with the developed algorithm, show that there is a 80[%] (approx.) of probability of success

Applications: WV over land



SACD AND THE ESTIMATION OF WATER VAPOR OVER LAND SURFACE.

Epeloa J, Meza A, Bava A.

Water vapor (WV) over land using brightness temperatures at 37 Ghz (V) and 24 Ghz(H) obtained with MWR variable.

The brightness temperatures for channels 24GHz (horizontal polarization), 37 Ghz (vertical polarization), and surface temperature were the dependent variables in the statistical regression.

Water vapor and surface temperature in situ data were obtained from radiosondes in the Southern of United States.

Preliminary results show that it is possible to estimate the atmospheric water vapor over land from the 37 Ghz and 24Ghz.

Thank you!!

Have a fruitful meeting!!!