Productos de CO de la NASA para aplicaciones de la calidad del aire

Capacitación de percepción remota de la NASA
Cursillo en línea no. 6, febrero 2014

ARSET - AQ

Applied Remote SEnsing Training – Air Quality
(“Capacitación de percepción remota aplicada – calidad del aire” en inglés)

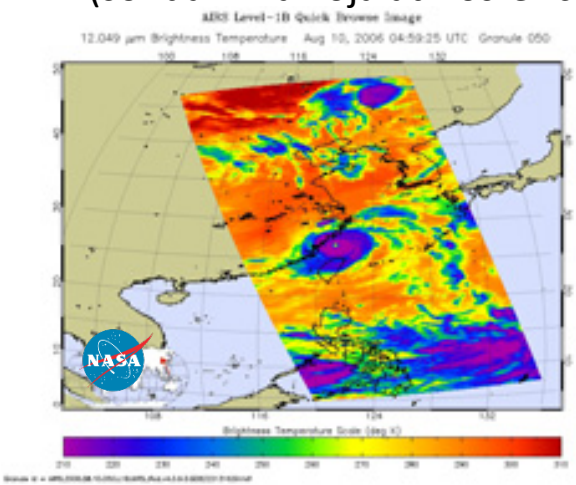
Un proyecto de Ciencias Aplicadas de la NASA

Observaciones satelitales del CO

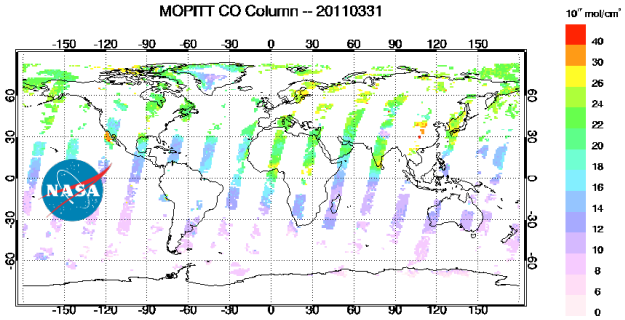
- El CO es
  - Un componente principal de la contaminación aérea, producido por los combustibles fósiles, la quema de biomasa, oxidación del CH_4
  - vinculado químicamente al O_3
  - un 'trazador' ideal
  - muy variable geográfica y temporalmente
- La observaciones satelitales del CO se utilizan con cada vez máz frecuencia para
  - evaluar modelos de transporte químico
  - cuantificar emisiones de CO (modelación inversa)
  - prognósticar la calidad del aire y el 'tiempo químico'

Sensores de CO actuales

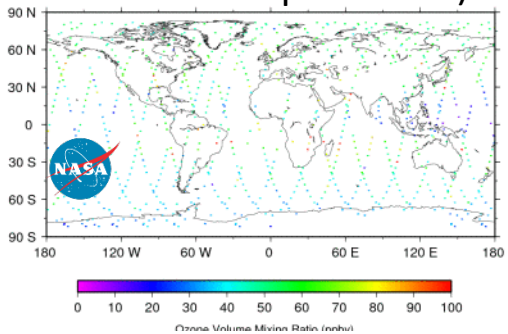
AIRS – Atmospheric Infrared Sounder
(sonda infrarroja atmosférica)



MOPITT – Measurements of Pollution in The Troposphere (mediciones de la contaminación en la tropósfera).

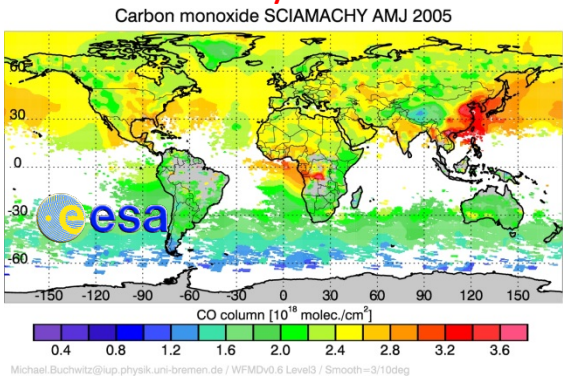


TES – Tropospheric Emission Spectrometer
(espectrómetro de emisiones troposféricas)

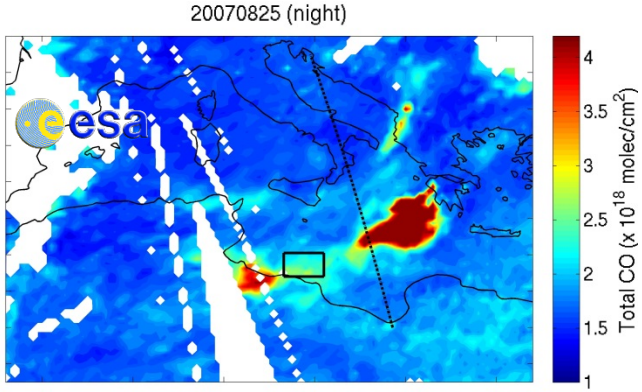


SCIAMACHY – Scanning Imaging Absorption Spectrometer for Atmospheric Cartography
(espectrómetro de escaneado de imágenes de absorción)

Terminó en mayo de 2012



IASI – Infrared Atmospheric Sounding Interferometer
(interferómetro infrarrojo de sonda atmosférica)



Tamaño de pixel Nivel 2 en el nadir y tabla de comparación

- AIRS — 14 x 14 km
- MOPITT — 22 x 22 km
- TES — 8.3 km, 5.3 km
- SCIAMACHY — 30 km, 60 km
- IASI — 12 x 12 km

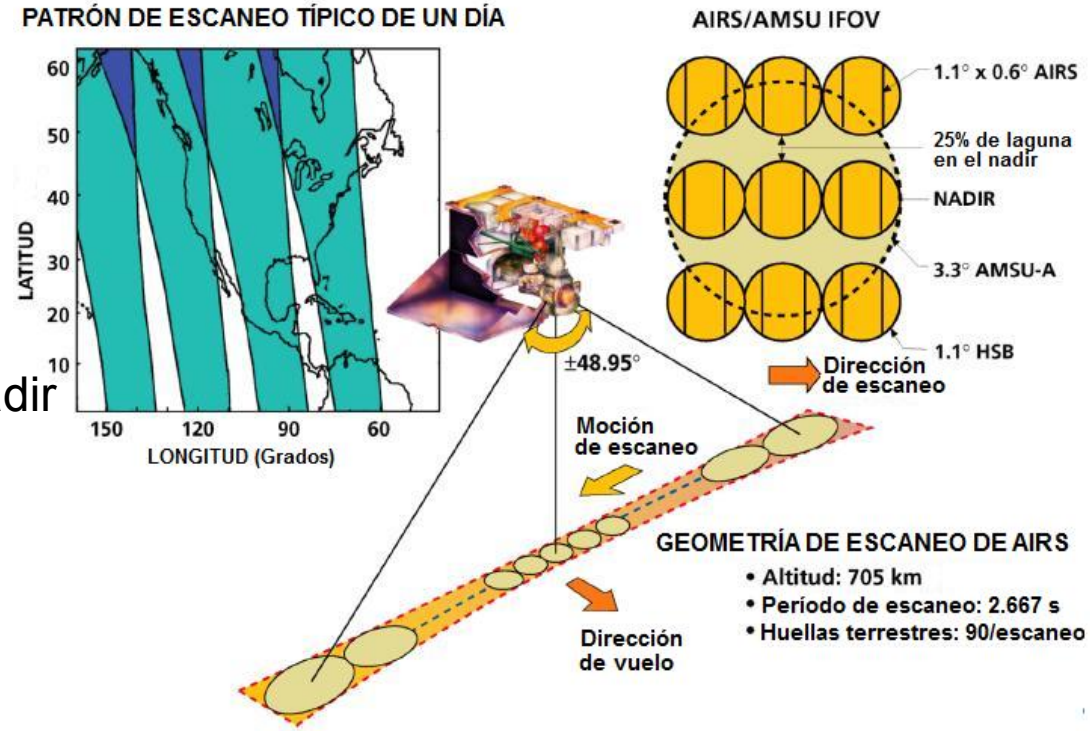
	MOPITT	AIRS	TES	IASI	SCIAMACHY
Tamaño de pixel/ producto	22 x 22 Km	45 x 45 KM 15 x 15 KM	5.3 x 8.3 KM 100 M between pixels	50 KM 12 x 12 KM	30 x 60KM
Ancho de barrido	650 KM	1650 KM	N/A	2200 KM	1000 KM
Cobertura global/ ciclo de repetición	3 Days	2X per day (day and night)	16 days	2X per day (day and night)	6 Days
Hora de pase superior	10:30 AM	13:30	2:30 AM / PM	9:30 AM/PM	10:00 AM
Resolución del producto	L3 1 Degree grid	L3 1 Degree grid	L3 5x8km	NO L3 Product	L3 0.5 Degree grid
Productos disponibles	L2 L3 Daily, Monthly	Level 2 (granule) Level 3	L2 granule	L2 NOAA and ESA	2B - swath 3 - global
Sensibilidad vertical	Mid and lower troposphere	Mid-Troposphere	mid and lower troposphere	mid troposphere	Total column only
Exactitud del producto	TIR - 10% Near Surface 30%	10 - 20%	20%	< 10%	10 - 20%
Otros apuntes	TIR and NIR Channels	QA flags in L2 and L3 Next product will include near surface	Report data for clouds 0 -25% Simultaneous trace gas	250 KM sampling ESA Should avg. to 4x5 deg.	

MOPITT - Measurements of Pollution In The Troposphere (mediciones de la contaminación en la tropósfera)

- En operacion desde marzo de 2000
- Un instrumento de sonda en el nadir
- Resolución de pixel = 22km × 22km
- Anchura de barrido = 640 km
- Hora de paso = 10:00 AM
- Los perfiles verticales del CO se obtienen a 4.7 μm (banda termal infrarroja – TIR)
  - Unidades del perfil = Partes por billón volumen en proporción e mezcla (ppbv)
- CO en columna se obtiene a 2.2-2.4 μm (banda casi infrarroja [NIR])
  - Unidades de columna = moléculas/cm2
- Actual Versión 5
- 9 niveles verticales 900hPa – 100hPa
- Los productos finales están en los datos cuadriculados de Nivel 3

PÁGINA PRINCIPAL = http://www.acd.ucar.edu/mopitt/

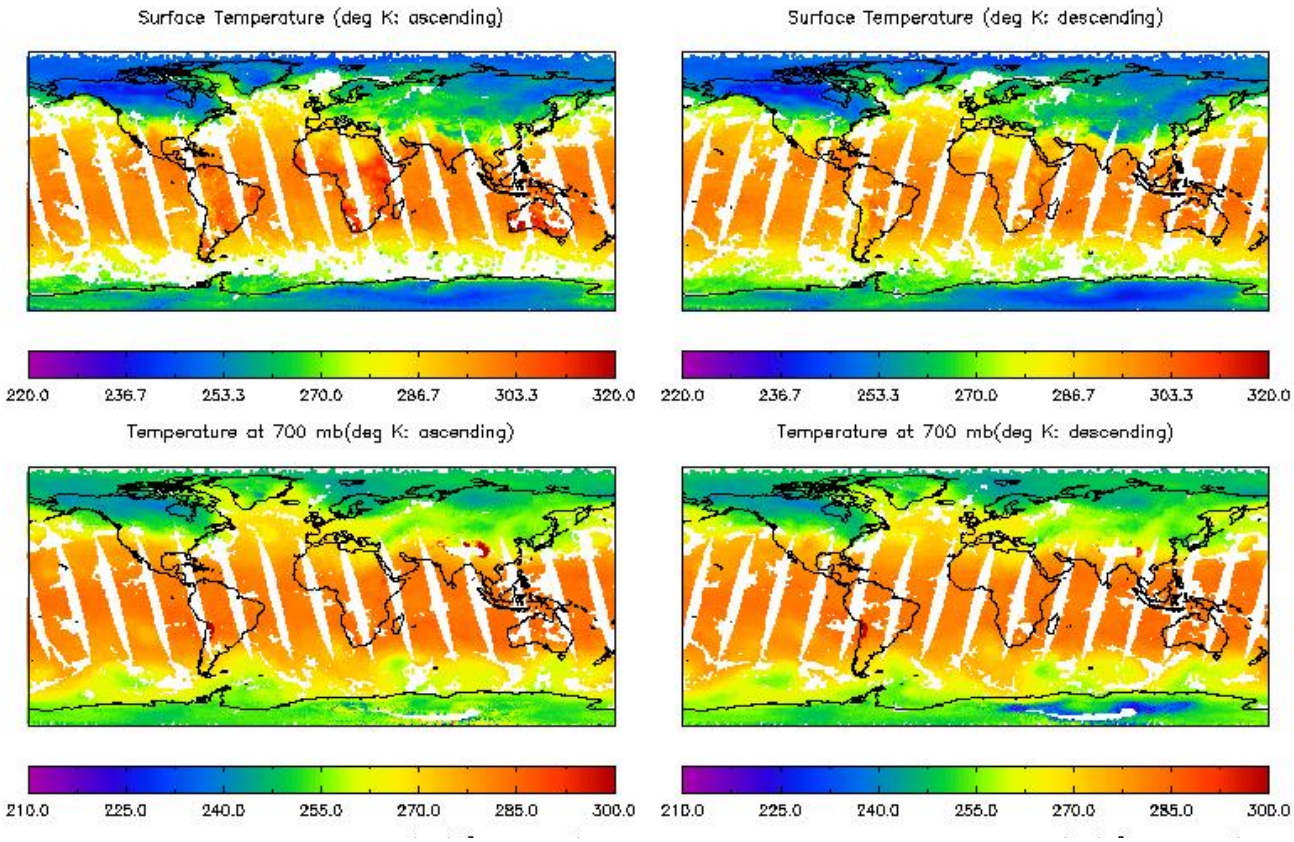
AIRS



- En operación desde sep. 2002
- Instrumento de sonda en el nadir
- Tamaño de pixel = 14 km en el nadir
  41 x 21 km a los bordes
- Anchura de barrido = 1650 km
- Horas de pase superior
  - 01h30 (órbita ascendiente)
  - 13h30 (órbita descendiente)
- 9 niveles verticales (904.866 hPa – 0.016 hPa)
  - Unidades de perfil = Proporción de mezcla de volumen
- Mediciones de CO total en columna proporcionadas en unidades = moléculas/cm^2
- Fuente de datos: Órbitas L2 y L3 cuadriculados a una resolución de 1º×1º
- Acaba de salir la Versión 6 – disponible en Nivel 2 solamente. Nivel 3 aún V5.

PÁGINA PRINCIPAL: http://airs.jpl.nasa.gov

Un día de datos de la AIRS



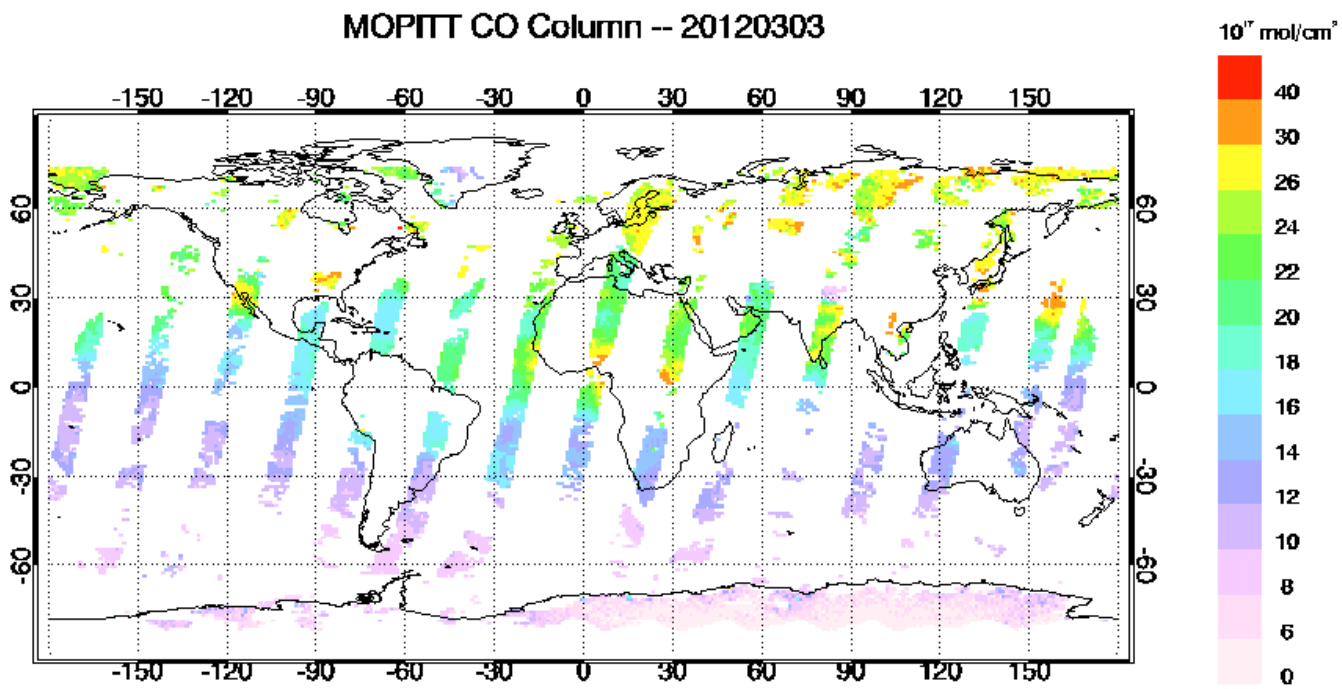
MOPITT – Measurements of Pollution in The Troposphere (Mediciones de contaminación en la tropósfera)

MOPITT V5 TIR/NIR Daytime CO Retrievals - Quick-look Images

YEAR MONTH DAY LEVEL

MOPITT Data page
Monthly Average Plots 2012 3 3 Column

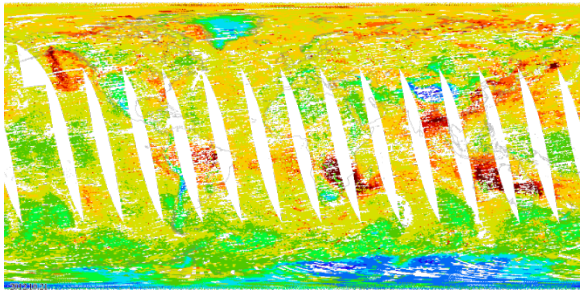
PLOT
PREVIOUS
NEXT

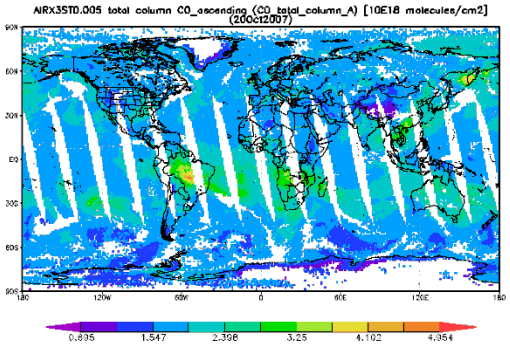


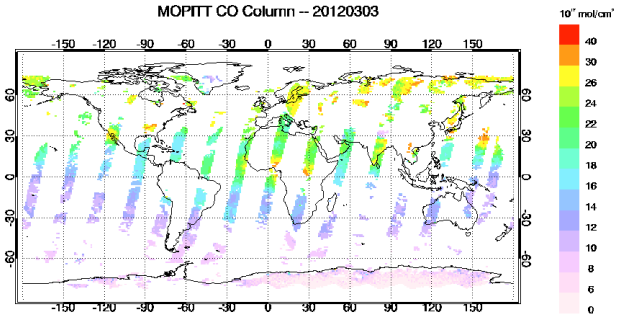
MOPITT Google Earth File

Página principal: http://www.acd.ucar.edu/mopitt/
Datos y documentación:
http://eosweb.larc.nasa.gov/PRODOCS/mopitt/table_mopitt.html

AIRS vs MOPITT CO





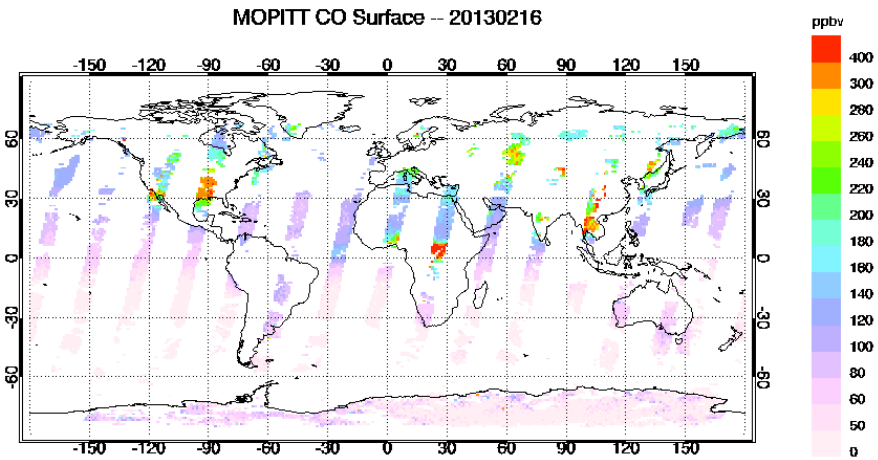


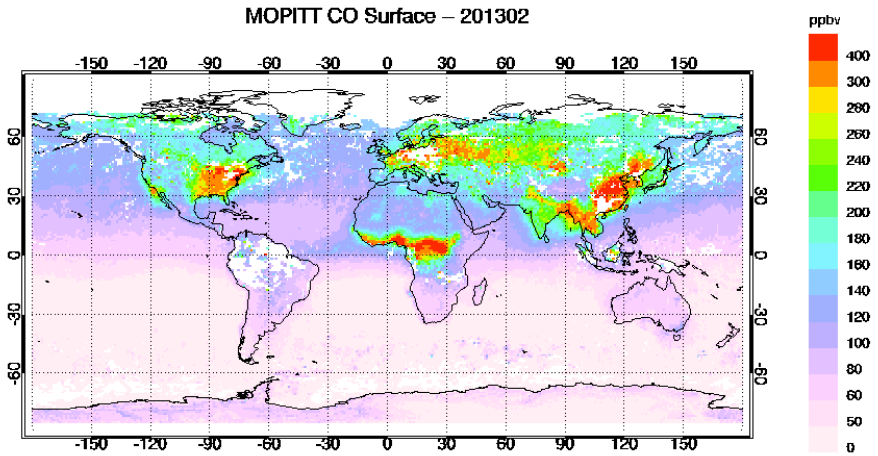
AIRS Nivel 2
De la página NRT

AIRS Nivel 3 1x1deg
de GIOVANNI

MOPITT Nivel 3 1x1deg

MOPITT – Measurements of Pollution in The Troposphere (Mediciones de contaminación en la tropósfera)





Cobertura de un día vs Cobertura de un mes

La medición satelital de monóxido de carbono (CO) es un excelente trazador de la quema de biomasa, por ejemplo incendios forestales

- Podemos usar las mediciones de CO de la Sonda atmosférica infrarroja (AIRS por sus siglas en inglés).
- No recomendaríamos utilizar las mediciones de contaminación en la tropósfera (MOPITT por sus siglas en inglés) para rastrear estos incendios porque hay grandes espacios entre los barridos, los cuales dificultan el rastrear las columnas de biomasa quemándose..
    - El ancho del barrido del AIRS es ~ 1650km mientas el de MOPITT ~ 640km. Tarda casi 3 días para obtener una cobertura global completa con el MOPITT. La AIRS ofrece cobertura dos veces al día (diurna y nocturna).

Órbita ascendiente = día
Órbita descendiente = noche

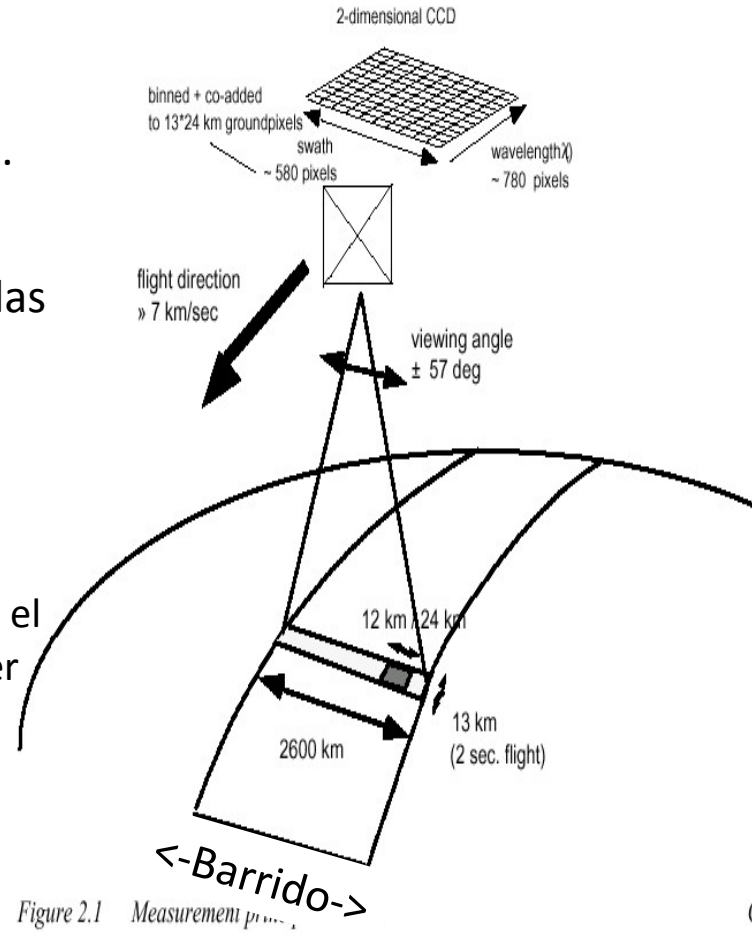
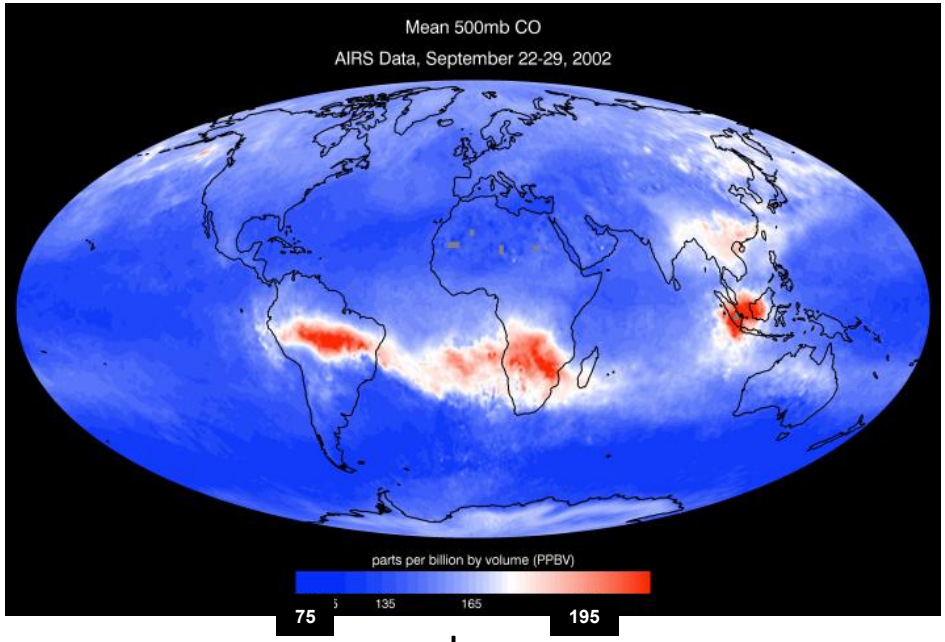
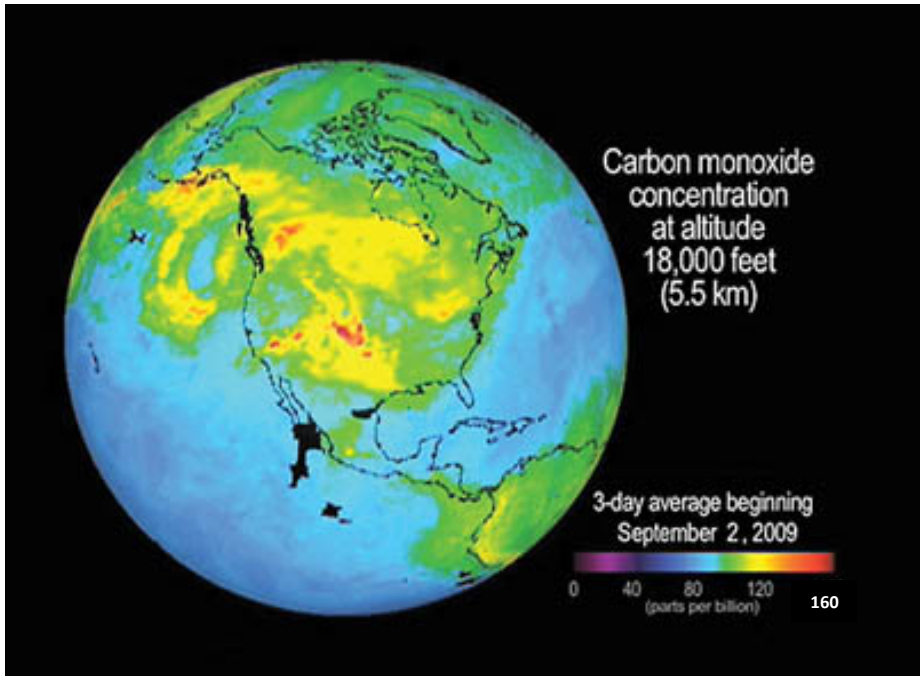


Figure 2.1 Measurement

Perspectiva: ¿Cuánto CO es mucho?



ppbv



Formatos de datos

Los datos de aura (OMI y TES) se almacenan en formato HDF5

Los datos de Airs y MOPITT se almacenan en formato HDF4

HDF Zoo – proporciona ejemplos sobre cómo leer y visualizar various archivos de NASA HDF/HDF-EOS usando IDL y MATLAB

http://hdfeos.org/zoo/

HDF - EOS Tools and Information Center

HOME | EXAMPLES | SOFTWARE | WORKSHOPS | FORUM | HELP | Search GO

COMPREHENSIVE EXAMPLES

This page provides comprehensive examples on how to access and visualize various NASA HDF/HDF-EOS files using IDL ®, MATLAB® and NCL. Other tools and programming languages examples can be found here.

Please read this special note first before you proceed further.

You can find examples quickly using the search box below. Please add keyword **'zoo'** first to limit the search within this *Comprehensive Examples* page. Then, type the **first few characters** from the NASA HDF/HDF-EOS file name such as **MOD06**. Finally, you can limit the search by providing one of programming language keywords: **NCL, IDL, or MATLAB**.

Search Examples by Product Name e.g. zoo MOD06 MATLAB GO

For a list of examples for the different data centers, click on the product name in the table below.

NASA Data Centers	Product Examples using different tools
GESDISC	AIRS TRMM MERRA TOMS OMI MLS HIRDLS BUV SWDB GSSTF GOSAT/ACOS
LAADS	MOD MYD NPP VIIRS
LP DAAC	MCD MOD MYD VIP WELD
LaRC	CERES MISR MOPITT TES
NSIDC	AMSR_E MODIS NISE ICESat/GLAS
PO.DAAC	AVHRR SeaWinds QuikSCAT Aquarius
Ocean Biology Processing Group	OCTS SeaWiFS CZCS MODISA MODIST
GHRC	LIS
ICESat-2	MABEL

Table 1: Sample Data Files and Code Examples

We also provide examples for other data centers that produce HDF4 files.

Other Data Centers	Product Examples using different tools
CloudSAT Data Processing Center	CloudSAT
Ocean Productivity	Net Primary Production

Table 2: Sample Data Files and Code Examples from Other Data Centers

We also extracted and documented information for sample HDF-EOS2/HDF4 and HDF-EOS5 files that are useful to determine the EOS contents stored in the sample files. Please click here for HDF-EOS2/HDF4 and here for HDF-EOS5 to read comprehensive description and retrieve sample files.

Nombres de archivos

AIRS

Level 3: AIRS.2013.03.07.L3.RetStd_IR001.v5.0.14.0.G13067153748.hdf

Fecha Nivel Tipo de producto Versión

Level 2: AIRS.2009.12.03.131.L2.RetStd.v5.0.14.0.G2002123120634.hdf

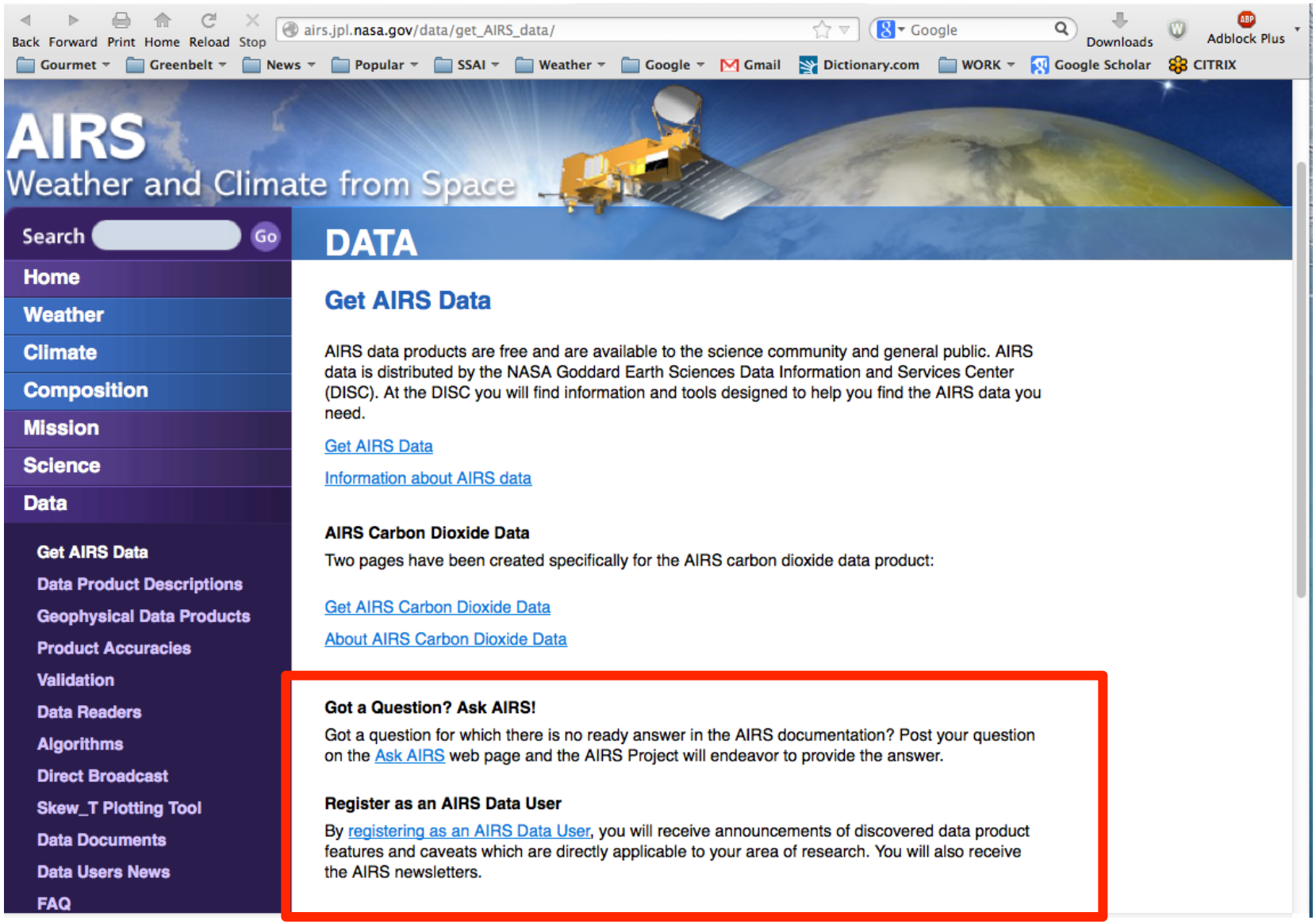
Número de gránulo = Hay 240 gránulos/día

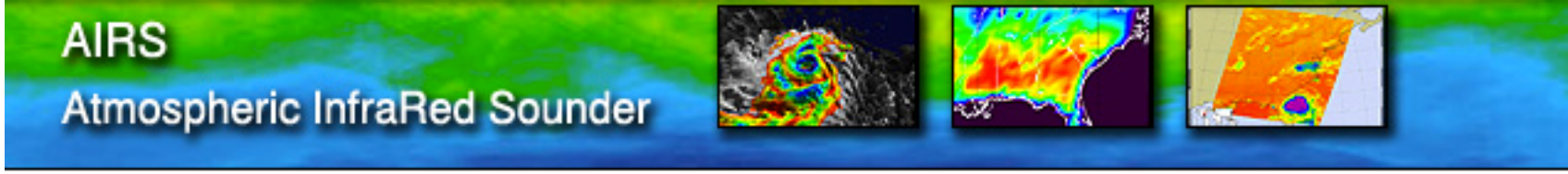
Nombre corto Fecha

MOPITT L3: MOP03N-20020119-L3V3.1.2.hdf

Acceso a datos e imágenes de la AIRS

http://airs.jpl.nasa.gov/data/get_AIRS_data/





Información de productos y acceso a los datos de AIRS se pueden encontrar aquí:
http://disc.sci.gsfc.nasa.gov/AIRS/data-holdings/by-data-product/data_products.shtml

Lo lleve a la página de búsqueda **Mirador**. Hay la opción de convertir al formato Net CDF

Lleva a una página de resumen de productos con enlaces a la documentación de instrumentos y de productos.

Nivel 2 AIRS2RET y
Nivel 3 AIRS3STD son los productos diarios estándar

HSB es un sensor de humedad que falló en 2003

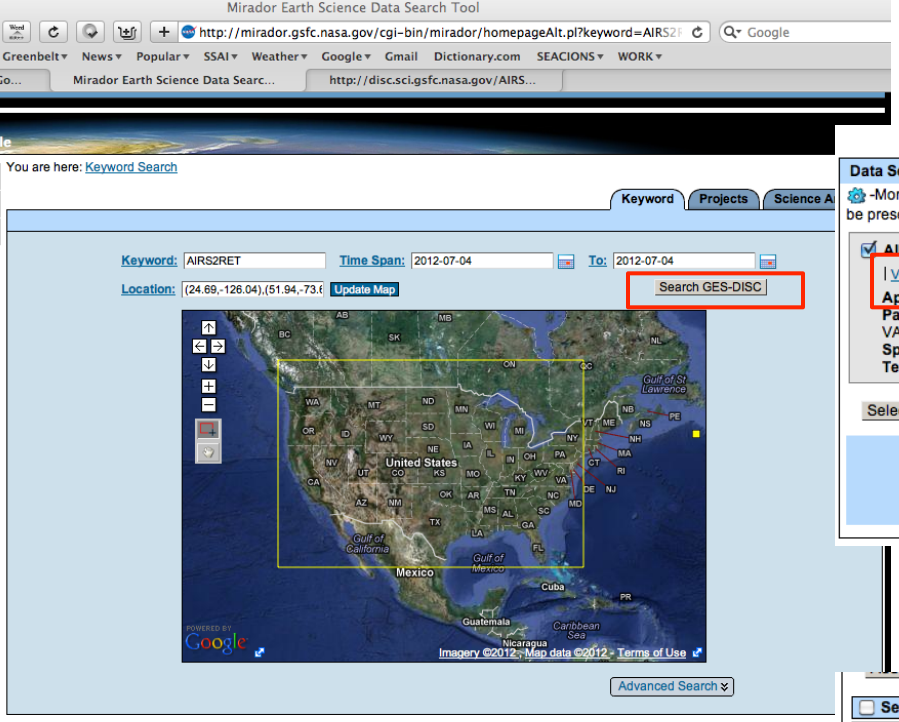
AMSU es una sonda de temperatura

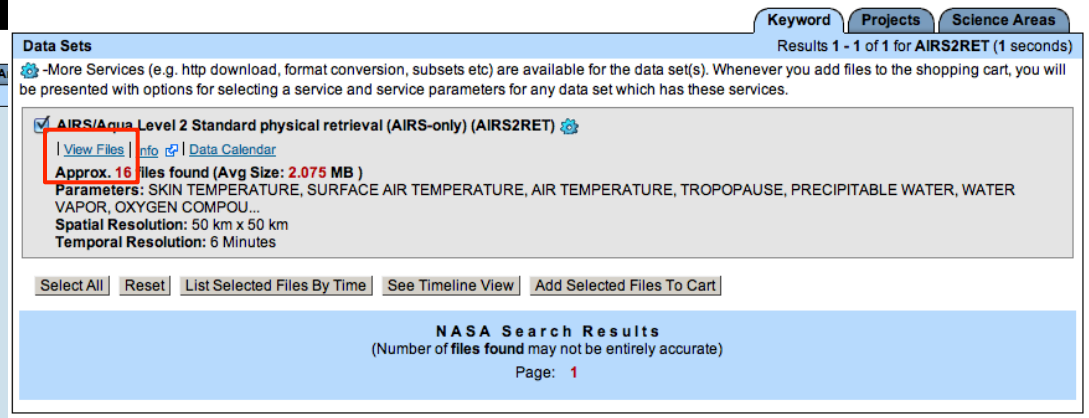
AIRS Level-2 Products (Version 5): without-HSB // AIRS IR Only // with-HSB

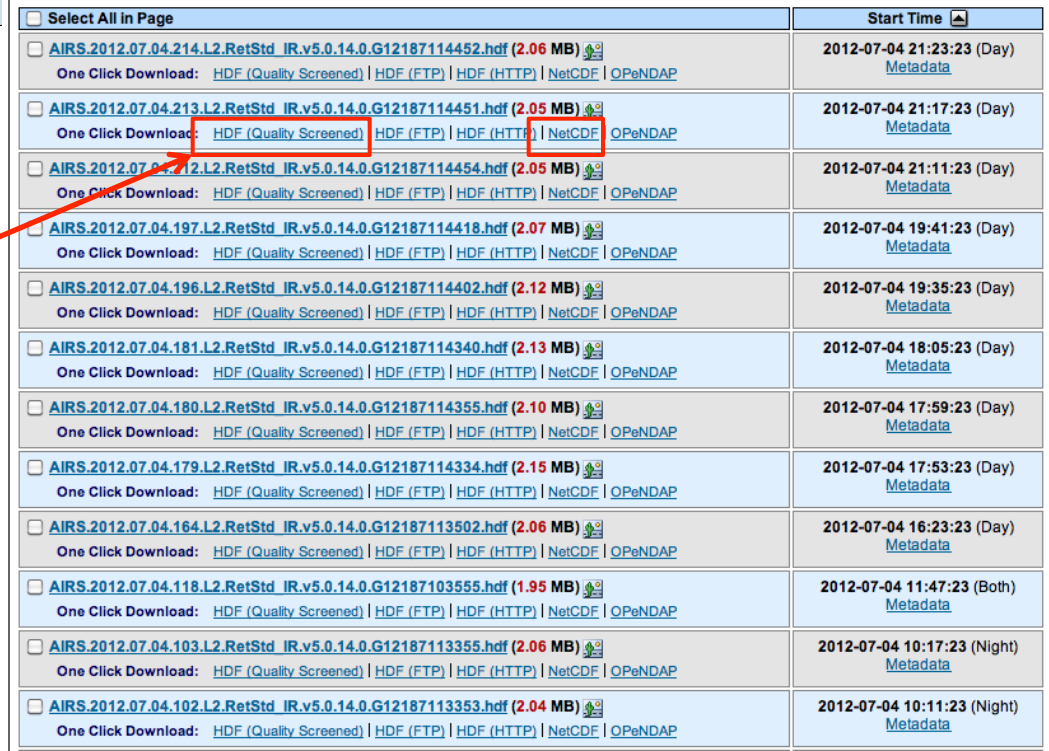
Data Product	Description	Spatial Resolution	Temporal Coverage	Average Item Size (Mb)	GES DISC Data Access
AIRX2RET	L2 standard retrieval product using AIRS IR and AMSU, without-HSB	45 km @ nadir; 28 atm pressure levels; 14 pressure layers for H2O related variables...	2002-08-30 - present	2.3	Search
AIRS2RET	L2 standard retrieval product using AIRS IR-only	45 km @ nadir; 28 atm pressure levels; 14 pressure layers for H2O related variables...	2007-05-31 - present	2.3	Search
AIRH2RET	L2 standard retrieval using AIRS IR and AMSU, with-HSB	45 km @ nadir; 28 atm pressure levels; 14 pressure layers for H2O related variables...	2002-08-30 - 2003-02-05	2.3	Search

AIRS Level-3 Products (Version 5): without-HSB // AIRS IR Only // with-HSB

Data Product	Description	Spatial Resolution	Temporal Coverage	Average Item Size(Mb)	GES DISC Data Access
AIRX3STD	L3 daily gridded standard retrieval product using AIRS IR and AMSU, without-HSB	1°x1°; 24 atm pressure levels; 12 pressure levels for H2O related variables.	2002-08-30 - present	71	Search
AIRS3STD	L3 daily gridded standard retrieval product using AIRS IR-only	1°x1°; 24 atm pressure levels; 12 pressure levels for H2O related variables.	2007-06-01 - present	54	Search
AIRH3STD	L3 daily gridded standard retrieval product using AIRS IR and AMSU, with-HSB	1°x1°; 24 atm pressure levels; 12 pressure levels for H2O related variables.	2002-08-30 - 2003-02-05	75	Search







Quality Screened (filtrado por calidad) = Filtra todos los variables de los datos según las recomendaciones del equipo científico.

Disponible SOLO para datos de Nivel 2!

¿Qué contiene un archivo de datos de la AIRS de Nivel 3?

Name	Long Name
AIRS.2011.01.03.L3.RetStd_IR001.v5.0.14.0.G11006101955.hdf	AIRS.2011.01.03.L3.RetStd_IR001.v5.0.14.0.G110...
ascending	
Data Fields	
Grid Attributes	
ascending_MW_only	
coremetadata	
coremetadata.1	
descending	
descending_MW_only	
location	
StructMetadata.0	
StructMetadata.1	

Name	Long Name
AIRS.2011.01.03.L3.RetStd_IR001.v5.0.14.0.G11006101955.hdf	AIRS.2011.01.03.L3.RetStd_IR001.v5.0.14.0.G110...
ascending	ascending
Data Fields	ascending/Data Fields
CH4_dof_A	
CH4_dof_A_ct	
CH4_dof_A_sdev	
CH4_Eff_Press_A	
CH4_Eff_Press_A_ct	
CH4_Eff_Press_A_sdev	
CH4_VMR_eff_A	
CH4_VMR_eff_A_ct	
CH4_VMR_eff_A_err	
CH4_VMR_eff_A_sdev	
CloudFrc_A	
CloudFrc_A_ct	
CloudFrc_A_err	
CloudFrc_A_sdev	
CloudTopPres_A	
CloudTopPres_A_ct	
CloudTopPres_A_err	
CloudTopPres_A_sdev	
CloudTopTemp_A	
CloudTopTemp_A_ct	
CloudTopTemp_A_err	
CloudTopTemp_A_sdev	
ClrOLR_A	
ClrOLR_A_ct	
ClrOLR_A_sdev	
CO_dof_A	
CO_dof_A_ct	
CO_dof_A_sdev	
CO_Eff_Press_A	
CO_Eff_Press_A_ct	
CO_Eff_Press_A_sdev	

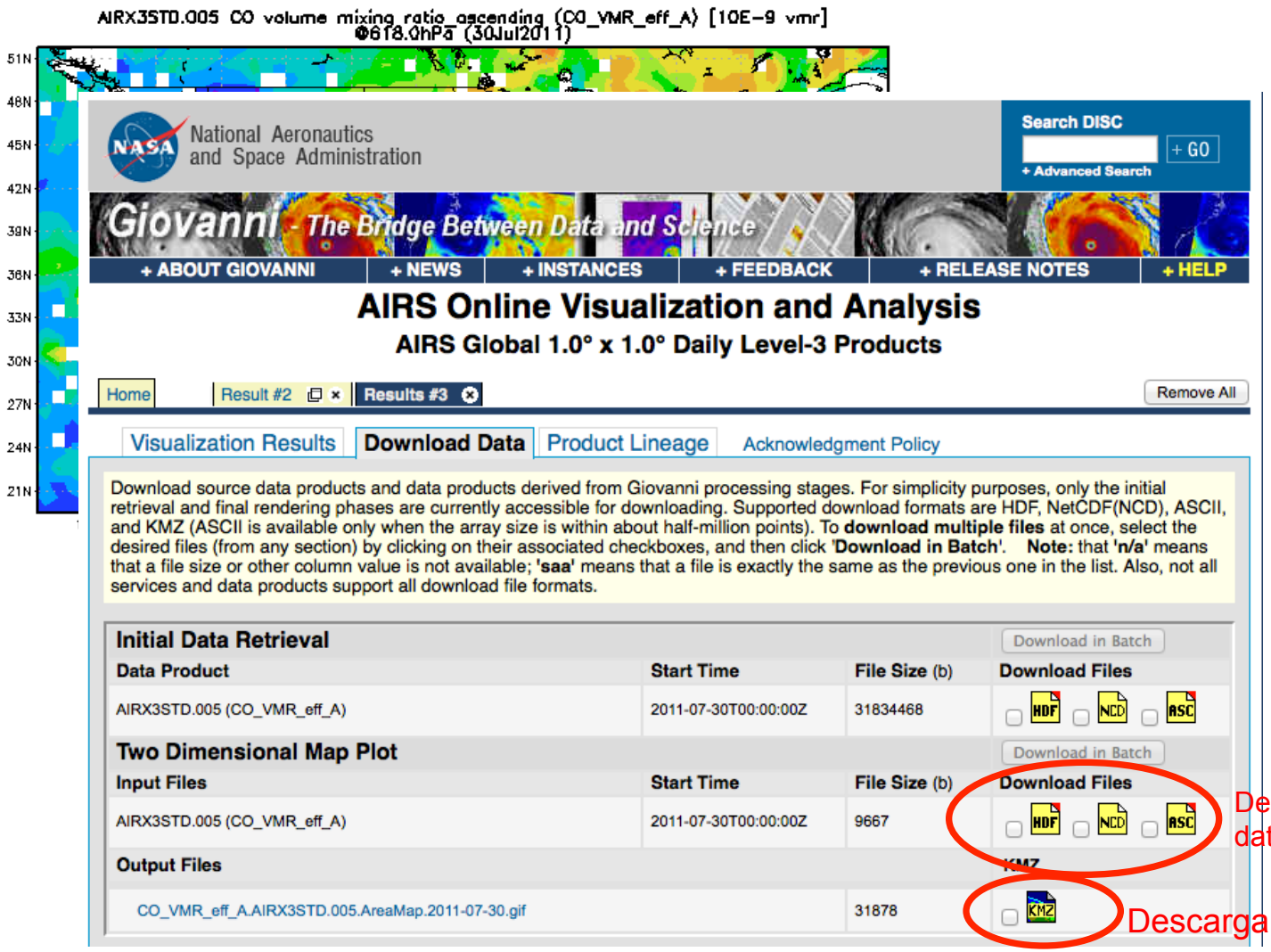
Name	Long Name
CO_total_column_A	CO_total_column_A
CO_total_column_A_ct	CO_total_column_A_ct
CO_total_column_A_sdev	CO_total_column_A_sdev
CO_Verticality_A	CO_Verticality_A
CO_Verticality_A_ct	
CO_Verticality_A_sdev	
CO_VMR_eff_A	
CO_VMR_eff_A_ct	
CO_VMR_eff_A_err	
CO_VMR_eff_A_sdev	
CoarseCloudFrc_A	
CoarseCloudFrc_A_ct	
CoarseCloudFrc_A_sdev	
CoarseCloudPres_A	
CoarseCloudPres_A_ct	
CoarseCloudPres_A_sdev	
CoarseCloudTemp_A	
CoarseCloudTemp_A_ct	
CoarseCloudTemp_A_sdev	
EmisIR_A	
EmisIR_A_ct	
EmisIR_A_err	
EmisIR_A_sdev	
FineCloudFrc_A	
FineCloudFrc_A_ct	
FineCloudFrc_A_sdev	
GPHeight_A	
GPHeight_A_ct	
GPHeight_A_sdev	
H2OVapMMR_A	
H2OVapMMR_A_ct	
H2OVapMMR_A_err	
H2OVapMMR_A_sdev	

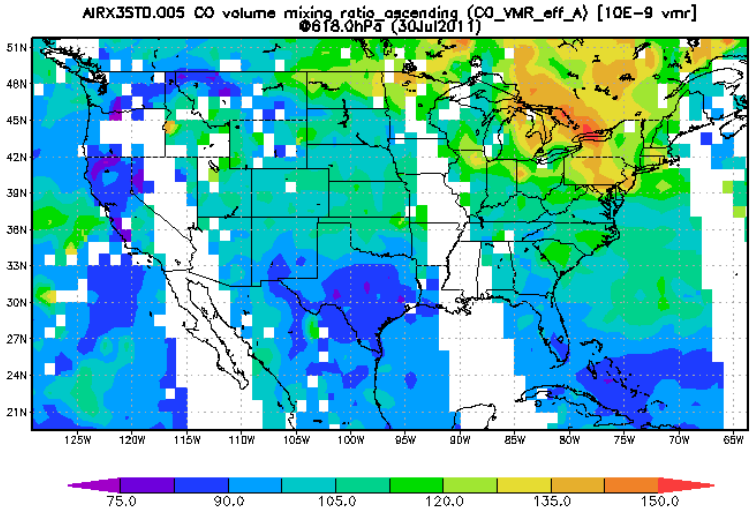
Name	Long Name
OLR_A	OLR_A
OLR_A_ct	OLR_A_ct
OLR_A_sdev	OLR_A_sdev
RelHumid_A	RelHumid_A
RelHumid_A_ct	RelHumid_A_ct
RelHumid_A_sdev	RelHumid_A_sdev
RelHumidLiq_A	RelHumidLiq_A
RelHumidLiq_A_ct	RelHumidLiq_A_ct
RelHumidLiq_A_sdev	RelHumidLiq_A_sdev
SurfAirTemp_A	SurfAirTemp_A
SurfAirTemp_A_ct	SurfAirTemp_A_ct
SurfAirTemp_A_err	SurfAirTemp_A_err
SurfAirTemp_A_sdev	SurfAirTemp_A_sdev
SurfPres_A	SurfPres_A
SurfPres_A_ct	SurfPres_A_ct
SurfPres_A_sdev	SurfPres_A_sdev
SurfSkinTemp_A	SurfSkinTemp_A
SurfSkinTemp_A_ct	SurfSkinTemp_A_ct
SurfSkinTemp_A_err	SurfSkinTemp_A_err
SurfSkinTemp_A_sdev	SurfSkinTemp_A_sdev
Temperature_A	Temperature_A
Temperature_A_ct	Temperature_A_ct
Temperature_A_err	Temperature_A_err
Temperature_A_sdev	Temperature_A_sdev
TotalCounts_A	TotalCounts_A
TotCldLiqH2O_A	TotCldLiqH2O_A
TotCldLiqH2O_A_ct	TotCldLiqH2O_A_ct
TotCldLiqH2O_A_err	TotCldLiqH2O_A_err
TotCldLiqH2O_A_sdev	TotCldLiqH2O_A_sdev
TotH2OVap_A	TotH2OVap_A

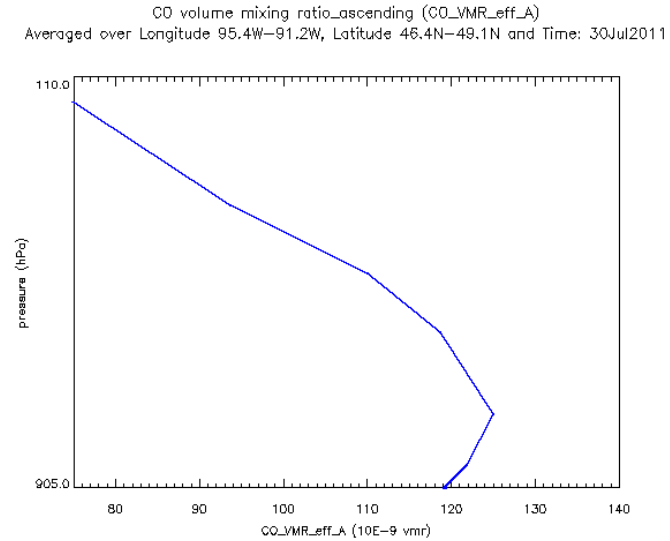
TotO3_A	TotO3_A
TotO3_A_ct	TotO3_A_ct
TotO3_A_err	TotO3_A_err
TotO3_A_sdev	TotO3_A_sdev
TropHeight_A	TropHeight_A
TropHeight_A_ct	TropHeight_A_ct
TropHeight_A_sdev	TropHeight_A_sdev
TropPres_A	TropPres_A
TropPres_A_ct	TropPres_A_ct
TropPres_A_sdev	TropPres_A_sdev
TropTemp_A	TropTemp_A
TropTemp_A_ct	TropTemp_A_ct
TropTemp_A_sdev	TropTemp_A_sdev

¡Datos de la AIRS en formato EOS-HDF4!

¡GIOVANNI es una alternativa!







National Aeronautics and Space Administration

Search DISC + GO

+ Advanced Search

Giovanni - The Bridge Between Data and Science

+ ABOUT GIOVANNI | + NEWS | + INSTANCES | + FEEDBACK | + RELEASE NOTES | + HELP

AIRS Online Visualization and Analysis

AIRS Global 1.0° x 1.0° Daily Level-3 Products

Home | Result #2 | Result #3 | Result #4 | Result #5 | Result #6 | Results #7 | Remove All

Visualization Results | **Download Data** | Product Lineage | Acknowledgment Policy

Download source data products and data products derived from Giovanni processing stages. For simplicity purposes, only the initial retrieval and final rendering phases are currently accessible for downloading. Supported download formats are HDF, NetCDF(NCD), ASCII, and KMZ (ASCII is available only when the array size is within about half-million points). To **download multiple files** at once, select the desired files (from any section) by clicking on their associated checkboxes, and then click **'Download in Batch'**. **Note:** that **'n/a'** means that a file size or other column value is not available; **'saa'** means that a file is exactly the same as the previous one in the list. Also, not all services and data products support all download file formats.

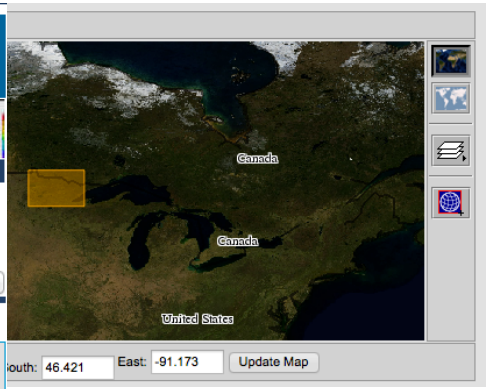
Initial Data Retrieval — Download in Batch

Data Product	Start Time	File Size (b)	Download Files
AIRX3STD.005 (CO_VMR_eff_A)	2011-07-30T00:00:00Z	31834468	HDF NCD ASC

Cross Section and Vertical Profile Renderer for Gridded Data — Download in Batch

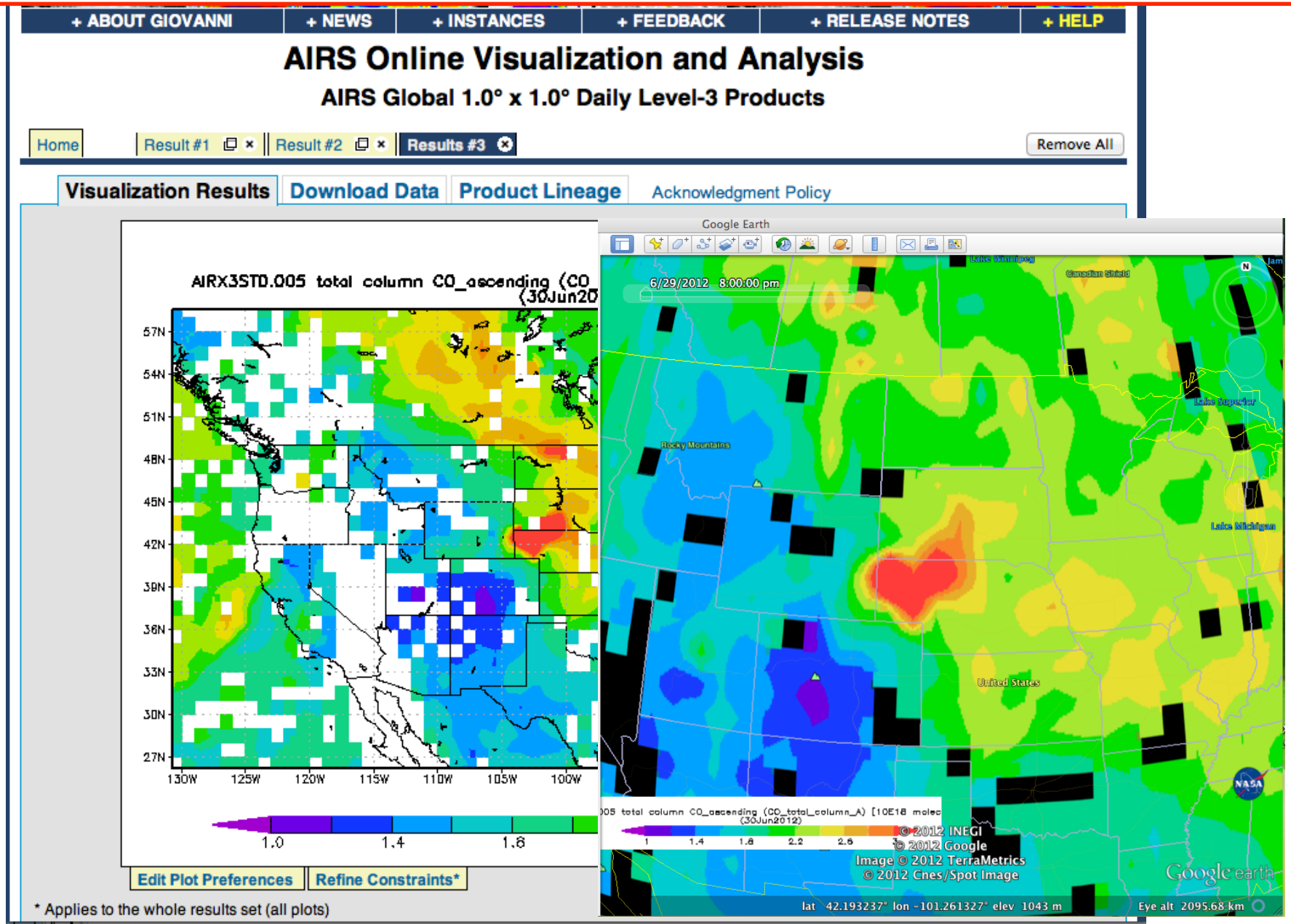
Input Files	Start Time	File Size (b)	Download Files
AIRX3STD.005 (CO_VMR_eff_A)	2011-07-30T00:00:00Z	4666	HDF NCD ASC

Output Files		KMZ
CO_VMR_eff_A-AIRX3STD-005.Crossmap.2011-07-30.png	5768	



http://gdata1.sci.gsfc.nasa.gov/daac-bin/G3/gui.cgi?instance_id=AIRS_Level3Daily

SI la resolución de AIRS Nivel 3 1x1 grado no es lo suficientemente fina, otra opción es usar datos de Nivel 2 – o NRT (tiempo casi real) o descargados del Goddard DISC.

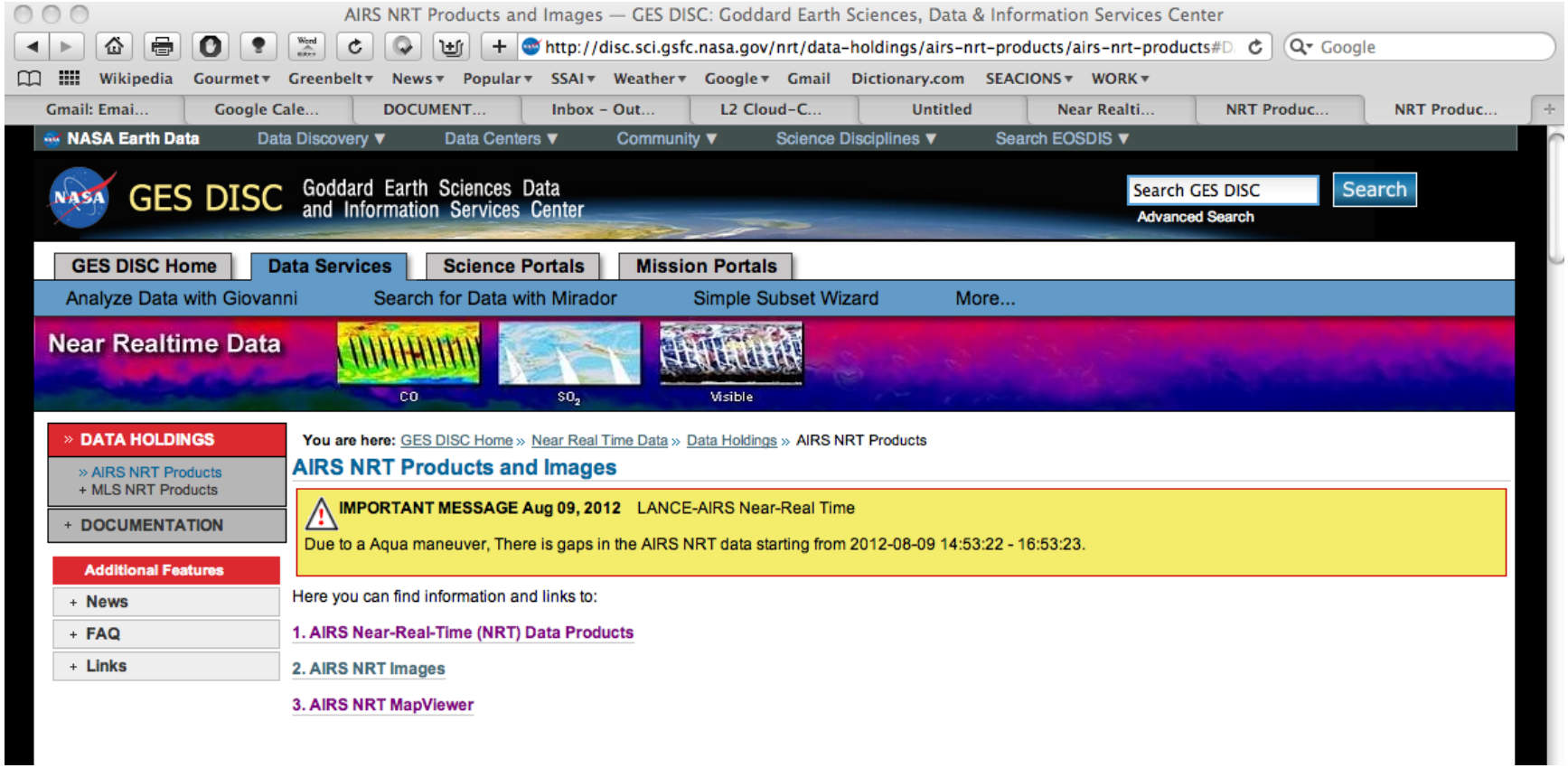


Acceso a los productos de gases trazadores en tiempo casi real

Página en línea de imágenes y productos NRT de la AIRS: http://disc.sci.gsfc.nasa.gov/nrt/data-holdings/airs-nrt-products/

Hay un producto en **Tiempo casi real (Near-Real Time (NRT))** que exporta archivos KMZ, pero solo está disponible para datos de los 9 días más recientes. Este producto es excelente para capturar eventos ¡**mientras suceden!**

Datos NRT Nivel 2, PNG, GeoTIFF y archivos KMZ están disponibles en esta página. **PERO no ofrece datos históricos.**



Página en línea de imágenes y productos NRT AIRS:
http://disc.sci.gsfc.nasa.gov/nrt/data-holdings/airs-nrt-products/

Para obtener archivos KMZ para Google Earth:

1. Pulse en “2. AIRS NRT Images”
2. Pulse en donde dice ‘KMZ’

AIRS NRT Products and Images — GES DISC: Goddard Earth Sciences, Data & Information Services Center

http://disc.sci.gsfc.nasa.gov/nrt/data-holdings/airs-nrt-products/airs-nrt-products#K

Wikipedia Gourmet Greenbelt News Popular SSAI Weather Google Gmail Dictionary.com SEACIONS WORK

Gmail: Emai... | Google Cale... | DOCUMENT... | Inbox - Out... | L2 Cloud-C... | Untitled | Near Realti... | NRT Produc... | NRT Produc...

2.3. KMZ, the compressed Keyhole Markup Language (KML)

KML is an XML-based language schema for expressing geographic annotation and visualization on existing or future Internet-based, two-dimensional maps and three-dimensional Earth browsers, like GoogleEarth. We link here to the **KMZ** - the compressed version of KML - because browsers can attempt to open KML as plain XML file, whereas our goal is to view global imagery, through GoogleEarth, or other relevant browser. An important distinction in this approach is that one file can contain multiple images ("Places") that can be overlayed for simultaneous three-dimensional views. The KMZ below can be easily combined and overlayed in various ways, using for instance GoggleEarth's "Places" and "Layers" folders.

You must have GoogleEarth (or other appropriate tool) installed on your computer to view the **KMZ** as images.

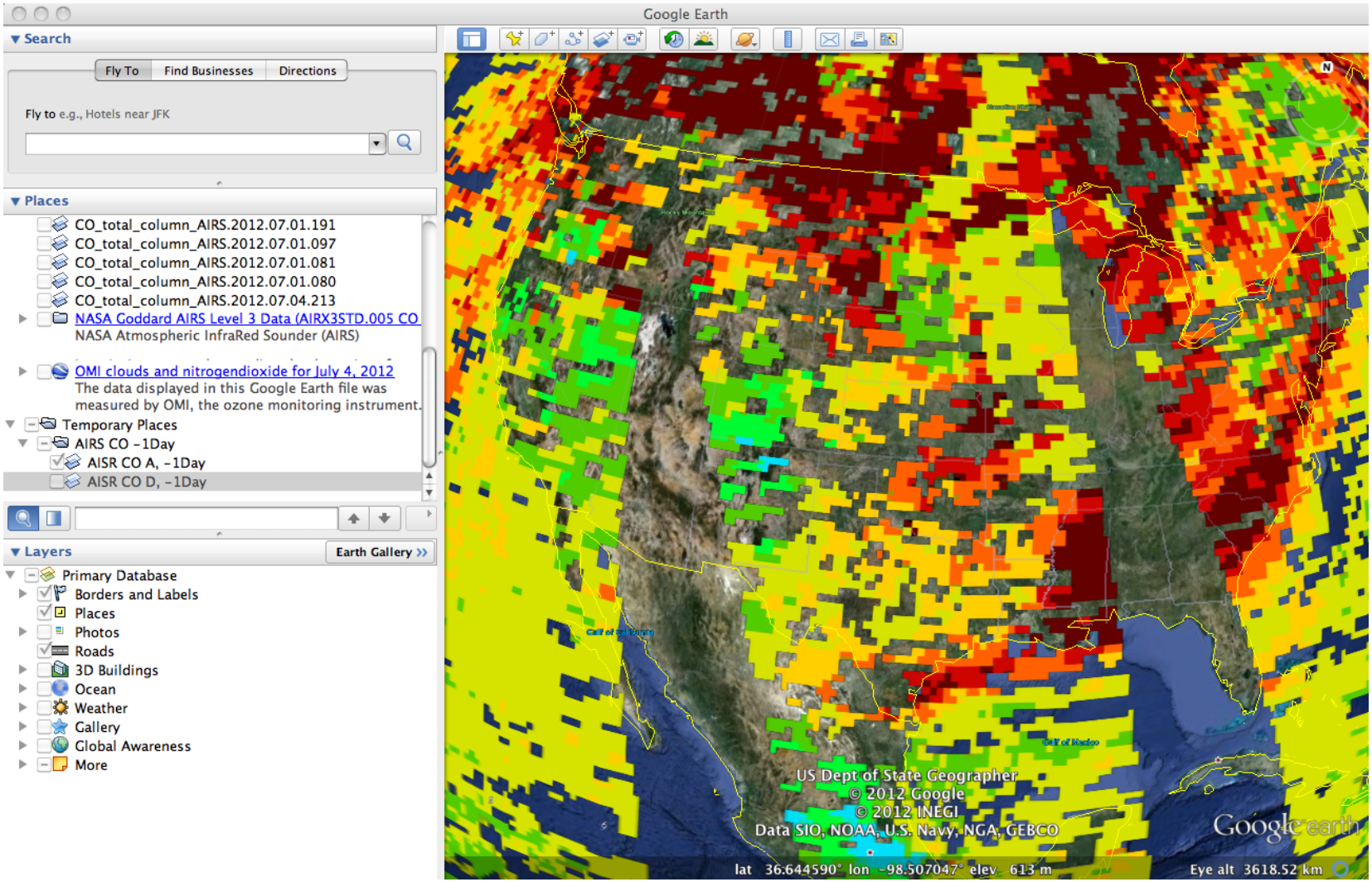
KMZ Format

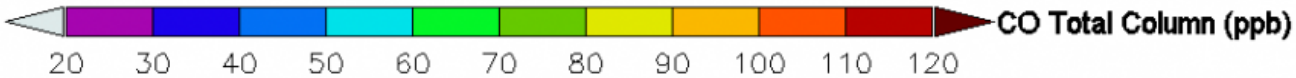
RGB* (Visible 3-km)	Today	Yesterday	-2 Days	-3 Days	-4 Days	-5 Days	-6 Days	-7 Days	-8 Days	-9 Days
IR_Precip_Est	Today	Yesterday	-2 Days	-3 Days	-4 Days	-5 Days	-6 Days	-7 Days	-8 Days	-9 Days
BT_diff_SO2	Today	Yesterday	-2 Days	-3 Days	-4 Days	-5 Days	-6 Days	-7 Days	-8 Days	-9 Days
Prata_SO2	Today	Yesterday	-2 Days	-3 Days	-4 Days	-5 Days	-6 Days	-7 Days	-8 Days	-9 Days
CO	Today	Yesterday	-2 Days	-3 Days	-4 Days	-5 Days	-6 Days	-7 Days	-8 Days	-9 Days
Dust Score	Today	Yesterday	-2 Days	-3 Days	-4 Days	-5 Days	-6 Days	-7 Days	-8 Days	-9 Days

***Note**:

- AIRS NRT imagery is broken into tiles that are seamlessly served as one image, to speed up regional viewing. Even though the Visible false color RGB are broken into tiles too, their global coverage at 3-km resolution still makes the tiles very big. Please, allow more time the RGB image to refresh in your application.
- The **Prata_SO2** images are generated by an algorithm authored by Fred Prata, Norwegian Institute for Air Research.

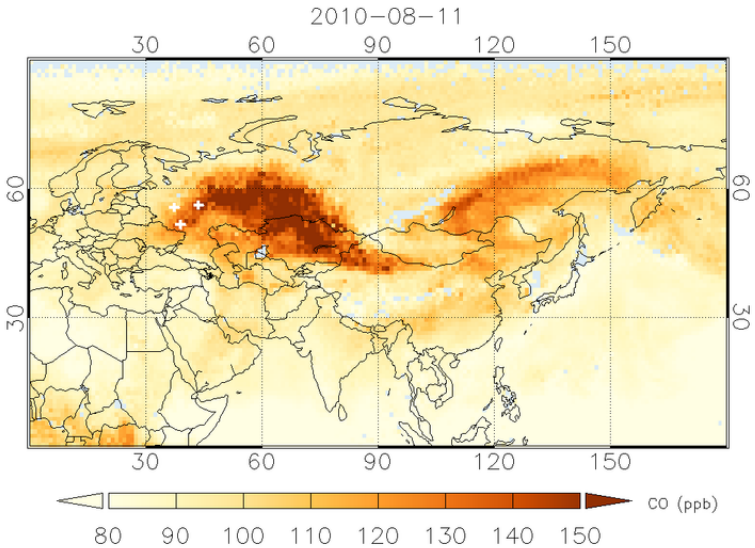
Nota: Estos datos NRT están en partes por billón (10^9)
A = Ascendiente (diurno) y D = Descendiente (nocturno) están incluídos.

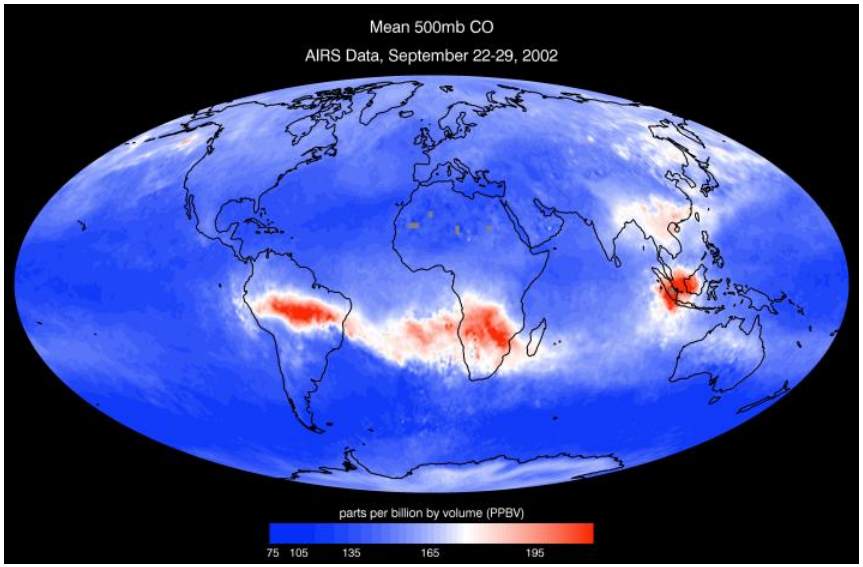




Imágenes de CO

AIRS – Atmospheric Infrared Sounder (Sonda infrarroja atmosférica)





- AIRS- Página principal: http://airs.jpl.nasa.gov/
- Documentación de versión 5 = http://disc.sci.gsfc.nasa.gov/AIRS/documentation/v5_docs
- Datos de GES DISC: http://disc.sci.gsfc.nasa.gov/AIRS/data-holdings/by-data-product/data_products.shtml
- Imágenes en tiempo casi-real y archivos de KMZ para CO AIRS.

http://disc.sci.gsfc.nasa.gov/nrt/data-holdings/airs-nrt-products/airs-nrt-products - WMS

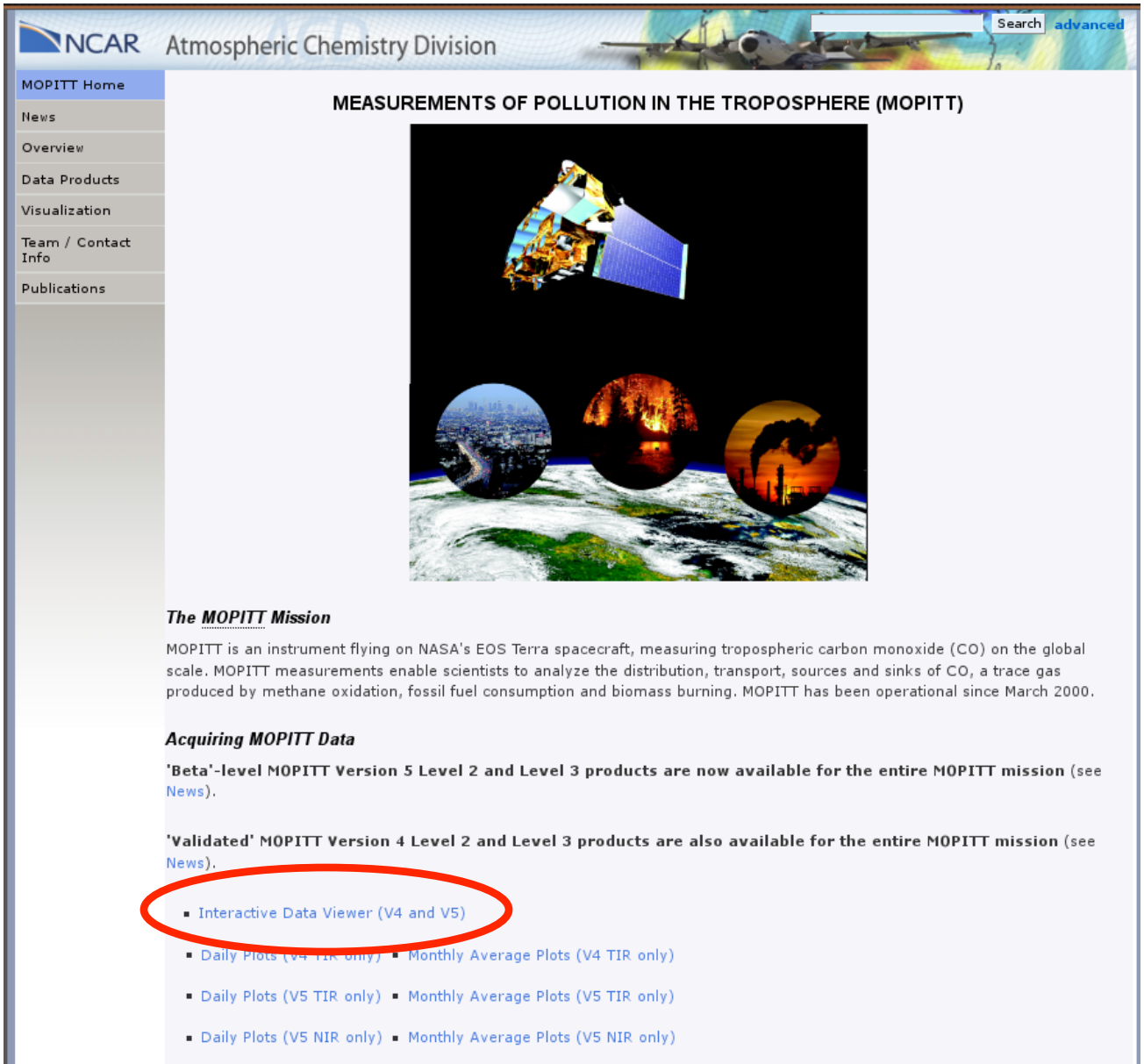
- Página de enlaces a imágenes archivadas y en tiempo casi-real y también para colecciones especiales.

http://disc.sci.gsfc.nasa.gov/AIRS/additional/gallery

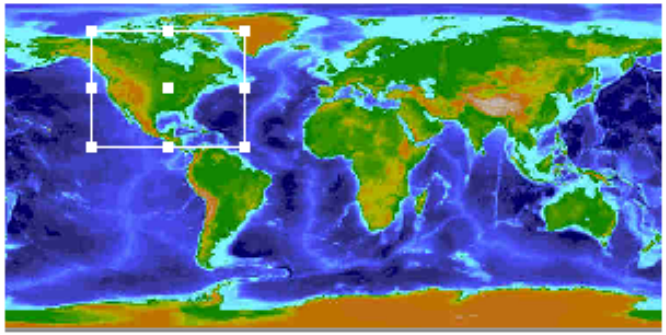
Acceso a datos e imágenes del MOPITT

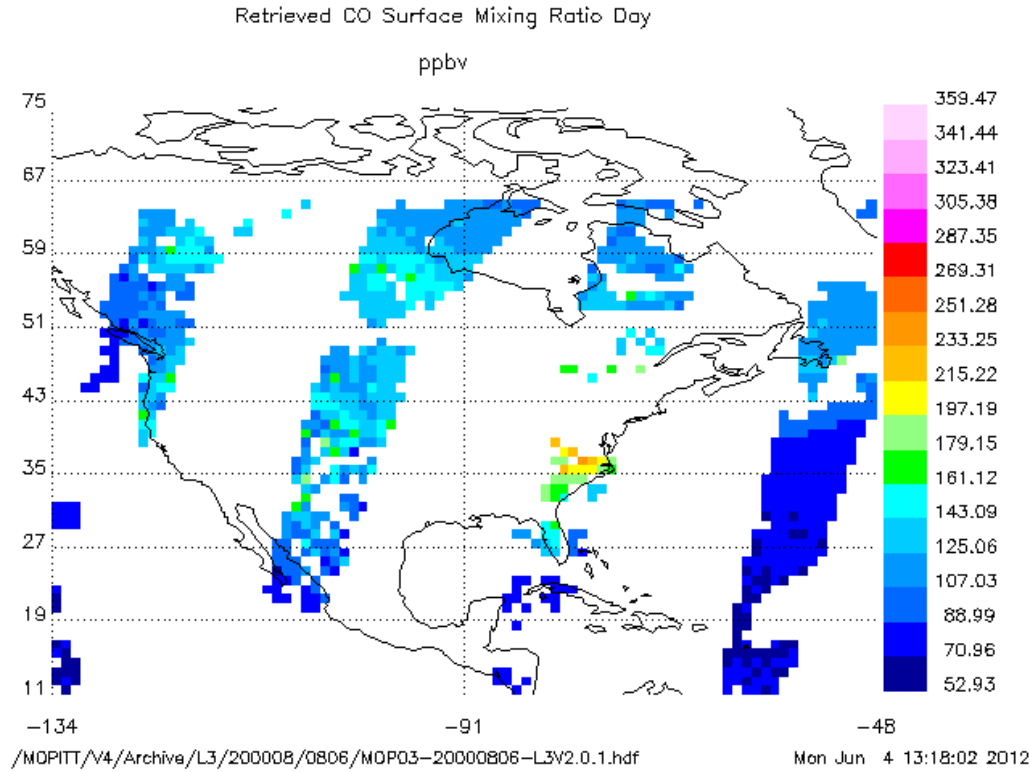
Ahora el MOPITT tiene un visualizador interactivo

Página principal: http://www.acd.ucar.edu/mopitt/



http://mopfl.acd.ucar.edu:8080/webviewV4/selectmopittfile





Current File: /MOPITT/V4/Archive/L3/200008/0806/MOP

Select Level 3 variable to plot: Retrieved CO Surface

Select preferred data time to use: Day Nigh

Projection	Colorbar	Plot Options
Cylindrical Equidistance	Data Max to Min	Filled Pixels
	High - Low	Black Background
	User Defined	Political Boundaries
		Size: Medium

Return to File Select | Reset Form | Export ASCII File | Plot

A diferencia de la AIRS – NO hay datos de MOPITT en tiempo real disponibles

http://www.acd.ucar.edu/mopitt/visualize.shtml

NCAR | NCAR Earth System Laboratory
Atmospheric Chemistry Division

Search advanced

National Science Foundation

- MOPITT Home
- News
- Overview
- Data Products
- Visualization
- Team / Contact Info
- Publications

VISUALIZATION

Quick-Look Images

Plots have been made of the CO retrievals for each day and monthly averages. The Version 4 Level 2 data have been gridded at 1 degree horizontal resolution. Plots will be added as V4 data is processed. See the News and Status page for dates of, and reasons for, missing data.

- Daily Plots (V4 TIR only)
- Monthly Average Plots (V4 TIR only)
- Daily Plots (V5 TIR only)
- Monthly Average Plots (V5 TIR only)
- Daily Plots (V5 NIR only)
- Monthly Average Plots (V5 NIR only)
- Daily Plots (V5 TIR/NIR)
- Monthly Average Plots (V5 TIR/NIR)
- Interactive Data Viewer

MOPITT V5 TIR/NIR Daytime CO Retrievals - Quick-look Images

YEAR MONTH DAY LEVEL

MOPITT Data page
Monthly Average Plots 2013 3 8 Column PLOT PREVIOUS NEXT

MOPITT CO Column -- 20130308

10^{17} mol/cm^2

40 30 26 24 22 20 18 16 14 12 10 8 6 0

MOPITT Google Earth File

MOPITT V5 TIR/NIR Daytime CO Retrievals - Quick-look Images

YEAR MONTH DAY LEVEL

MOPITT Data page
Monthly Average Plots 2012 6 30 Surface PLOT PREVIOUS NEXT

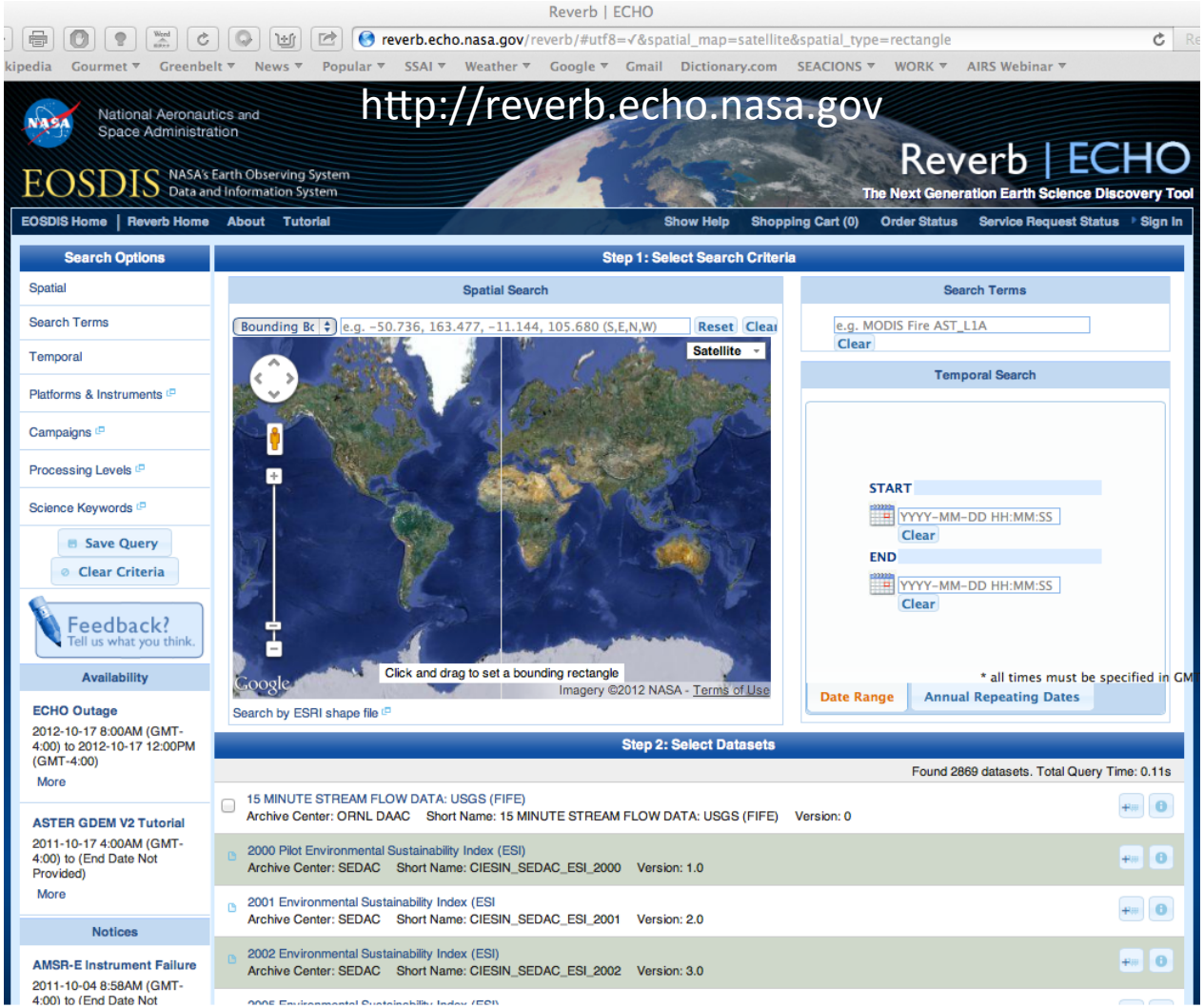
MOPITT CO Surface -- 20120630

ppbv

400 300 280 260 240 220 200 180 160 140 120 100 80 60 50 0

MOPITT Google Earth File

Datos del MOPITT (+ todos los de los satélites NASA EOS) están disponibles en el EOSDIS – Earth Observing System Data and Information System (Sistema de datos e información de sistemas de observación terrestre)



Panoply – netCDF, HDF, y visualizador de datos GRIB

http://www.giss.nasa.gov/tools/panoply/

National Aeronautics and Space Administration
Goddard Institute for Space Studies

Goddard Space Flight Center
Sciences and Exploration Directorate
Earth Sciences Division

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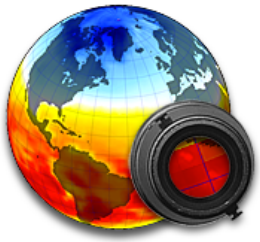
Panoply netCDF, HDF and GRIB Data Viewer

panoply \PAN-uh-plee\, noun: 1. A splendid or impressive array. ...

Panoply is a cross-platform application which plots geo-gridded arrays from netCDF, HDF and GRIB datasets. You can:

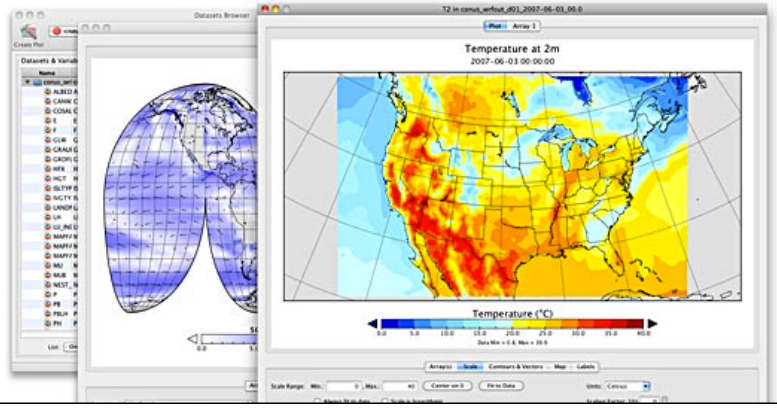
- Slice and plot specific latitude-longitude, latitude-vertical, longitude-vertical, or time-latitude arrays from larger multidimensional variables.
- Combine two arrays in one plot by differencing, summing or averaging.
- Plot lon-lat data on a global or regional map (using any of over 75 map projections) or make a zonal average lineplot.
- Overlay continent outlines or masks on lon-lat plots.
- Use any ACT, CPT, GGR, or PAL color table for scale colorbar.
- Save plots to disk GIF, JPEG, PNG or TIFF bitmap images or as PDF or PostScript graphics files.
- Export lon-lat map plots in KMZ format.
- Export animations as AVI or MOV video or as a collection of invididual frame images.
- Explore remote THREDDS and OpenDAP catalogs and open datasets served there.



The current version of Panoply is 3.1.5, released 2012-09-20.

Panoply requires that your computer have a **Java SE 6** runtime environment, or better, installed.

To be plotted by Panoply, dataset variables must be tagged with metadata information using a convention such as CF.



Cómo usar el CO de la AIRS para rastrear columnas de incendios forestales

- HERRAMIENTAS
  - GIOVANNI
    - Usa datos cuadriculados de Nivel 3 1°X1°
    - Rendimientos incluyen:
      - Subconjunto de datos en ASCII, NetCDF
      - Formato KMZ para visualiaciones en Google
  - HDFLook– con capacidades limitadas.
  - Imágenes y productos AIRS Near Real Time (NRT- tiempo casi-real)
    - Usa datos de Nivel 2 no cuadriculados
    - Rendimientos incluyen:
      - Imágenes PNG, GeoTIFF
      - Formato KMZ para Google Earth (imágenes diurnos y nocturnos)
    - ADVERTENCIA: Sólo almacena imágenes desde 9 días antes del presente.
  - Panoply
    - Se usa para visualizar archivos en formato HDF
    - Se usa para convertir archivos HDF a KMZ para visualización en Google Earth

Resumen de páginas en línea de la AIRS y el MOPITT

GIOVANNI

http://disc.sci.gsfc.nasa.gov/giovanni

AIRS Near-Real Time (NRT) Products and Images (PNG, GeoTIFF, KMZ)

http://disc.sci.gsfc.nasa.gov/nrt/data-holdings/airs-nrt-products/

AIRS Level 2 Data Products

http://disc.sci.gsfc.nasa.gov/AIRS/data-holdings/by-data product/data_products.shtml

Herramienta de búsqueda global EOSDISC Reverb : http://reverb.echo.nasa.gov

Búsqueda "Mirador "/Obtener fecha: http://mirador.gsfc.nasa.gov

Página principal de la AIRS: http://airs.jpl.nasa.gov/

Página principal del MOPITT: http://www.acd.ucar.edu/mopitt/

Imágenes diarias/mensuales del MOPITT:

http://www.acd.ucar.edu/mopitt/visualize.shtml

http://mopfl.acd.ucar.edu:8080/webviewV4/selectmopittfile