WORLD METEOROLOGICAL ORGANIZATION

CBS/OPAG-IOS/WxR_EXCHANGE/3.1.3

COMMISSION FOR BASIC SYSTEMS
OPEN PROGRAMME AREA GROUP
ON INTEGRATED OBSERVING SYSTEMS

04.02.2013

WORKSHOP ON RADAR DATA EXCHANGE

ITEM: 3

EXETER, UK, 24-26 APRIL 2013

Original: ENGLISH

CURRENT STATUS OF WEATHER RADAR DATA EXCHANGE

Regional Report on the current status of the exchange of weather radar data – RA III

(*Submitted by José Mauro de Rezende, Brazil)*

SUMMARY AND PURPOSE OF DOCUMENT

The purpose of this document is to report the present status on the radar network in Region III.

ACTION PROPOSED

Workshop participants are invited to consider and discuss this material contained in the document.

METEOROLOGICAL RADAR IN REGION III

1. Brazil

The use of meteorological radar in Brazil started in the year 1970 at the Meteorological Research Institute – IPMET in Bauru with the investigation on severe thunderstorm, estimates of precipitation techniques, and its applications in agriculture, energy and communications as well as its use in weather forecast in very short term. Since that time, several radars were installed in the country, mainly as an academic initiative. It was a great progress but still under the necessities of a big country like Brazil.

The Air Force represents a very important advance because they implemented a network of radar and the data are collected, distribute, recorded and available for research (http://www.redemet.aer.mil.br/radar/radar.php?ID_REDEMET=55ramuqfi53j5mc9rii3sa6c04).

The SIPAM (Amazon Protection System) was another step in radar network. They operate several radars mainly in the amazon region (http://www3.sipam.gov.br/RADAR2.HTML).

There are other radars installed in the country but not part of a national network. They represent local initiatives and some of them make money selling special services. They have restrictions to make the data available in real time for an open network.

Other radar operators

Funceme:
Operates radar located in Fortaleza and Quixeramobim (Ceará)
http://www.funceme.br/radar/index.php?nome=radarx

IPMET:
Operates radar located in Bauru and Presidente Prudente (São Paulo)
http://www.ipmet.unesp.br/index2.php?menu_esq1=&abre=ipmet_html/radar/ppi.php

SIMEPAR:
Operates radar located in Teixeira Soares (Paraná)
http://www.simepar.br/site/internas/conteudo/monitoramento/radar/index.shtml

Pelotas University:
Operates radar located in Pelotas (Rio Grande do Sul)

CEMIG/IGAM:
Operates radar located in Mateus Leme (Minas Gerais)

DAEE:
Operates radar located in Salesópolis (São Paulo)
http://www.saisp.br/estaticos/sitenovo/produtos.xmlt

Geo-Rio Foundation:
Operates radar located in Sumaré (Rio de Janeiro)
http://riomidia.cor.rio.gov.br/externo/alertario/

SOMAR Meteorologia
http://www.tempoagora.com.br/radar/

The full list of radars in Brazil is attached at this document.

2. Use of the Radar Data

Regarding the use of radar data in Brazil, its is possible to summarise it as follows:

1. Monitoring of precipitation;
2. Nowcasting;
3. Estimation of rain, integrated with satellite data;
4. Estimation of winds;
5. Classification of hydrometeors (hail, rain, snow, etc.)
6. Brazil still does not assimilate radar data in NWP, but uses procedures for verification and nowcasting.

SIMEPAR is the reference organisation in Brazil in the use of radar data for nowcasting activities.

Most of the operators use the software TITAN, from NCAR.

3. Radar Integration

Some years ago, Dr. Luiz Augusto Machado from CPTEC/INPE tried to concentrate the radar information in one place and was able the congregated data from 11 radars in an web page http://sigma.cptec.inpe.br/radar/, including in radar from Paraguay.

The Air Force Command is running a project which contemplates to store raw radar data. At the moment, 82% of the project is completed and efforts are being made to conclude it until the end of May 2013. Once it done, as a first step, the 3D radar data of 1/3 of the Brazilian territory (south, southeast e west-center) will be archived at one center.

Due to the different interesting of the radar owners, co-ordination to concentrate the actions in this area is still poor but the situation is changing.

4. South America

Concerning other Region III countries, the situation is very similar to Brazil in terms of the use of the data. Here also, there is a lack of co-ordination.

ARGENTINA

In terms of numbers or radar installed, Argentina has 8 radar located as follows:

Ezeiza:

Doppler, single polarization, model DWSR 2500C from “ENTERPRISE ELECTRONICS CORPORATION” running EDGE (Enterprise Doppler Graphics Enviromenment) installed close to the Ezeiza Airport (34,76667 °S and 58,51667°W).

Pergamino:

Doppler, single polarization, model METEOR 500 from AMS GEMATRONIK running RAINBOW installed at the Pergamino INTA Experimental Station (33,9416°S and 60,5625°W)

Anguil:

Doppler, single polarization, model METEOR 500 from AMS GEMATRONIK running RAINBOW installed at the Anguil INTA Experimental Station (36,50000°S and 60,98334°W)

Paraná:

Doppler, single polarization, model METEOR 500 from AMS GEMATRONIK running RAINBOW installed at the Paraná INTA Experimental Station (31,858334°S and 60,539722°W)

San Martín:

Single polarization, running TITAN installed at 33,071824°S and 68,464285°W.

San Rafael:

Single polarization, running TITAN installed at 34,65°S and 68,02°W.

Tunuyán:

Single polarization, running TITAN installed at 33,44°S and 68,96°W..

Jujuy:

Single polarization, running TITAN installed at 24,17056°S and 68,57117°W.

Level 3 products

CMAX: Column Maximun
GAUGE: Rain Gauge
TTOPS: Echo Tops
EBASE: Echo Base
CAPPI: Constant Altitude Plan Position Indicator
ACM: Precipitation Accumulation
HAILP: Hail Probability
HMAX: Height of Maximun reflectivity
PPI: Plan Position Indicator
RHI: Range Height Indicator
SECT: Section
VAD: Velocity Azimuth Display
VIL: Vertically Integrated Liquid
XSEC: Cross Section

PARAGUAY

Paraná

Doppler, single polarization, C-band,, model VHDD-350C from BARON SERVICE running SIGMET (planned to be replaced by the software FROG), installed at the University of Assuncion (25,333151 °S and 57,523399°W).

COLOMBIA

Bogotá

Doppler, dual polarization, C-band, magnetron, model WRM200 from Vaisala.

Corozal

Doppler, dual polarization, C-band, magnetron, model WRM200 from Vaisala.

Medellín

C-band radar.

VENEZUELA

Venezuela also bought 8 german radars (Gematronik) located according to the table below.

Name	Latitude	Longitude	Status
Jeremba	10° 24’ 37” N	67° 13’ 04” W	Operational
Capuchino	10° 32’ 59” N	63° 21’ 07” W	Operational
Maracaibo	10° 33’ 51” N	71° 43’ 21” W	Operational
Guasdualito	07° 12’ 25” N	70° 45’ 40” W	Maintenance
Puerto Ayacucho	05° 39’ 05” N	67° 36’ 15,52” W	Operational
Karum	05° 18’ 57” N	63° 24’ 09” W	Not working
Santa. Elena	04° 34’ 08” N	61° 04´ 37” W	Under construction
Guri	07° 46’ 27” N	63° 03’ 05” W	Under construction

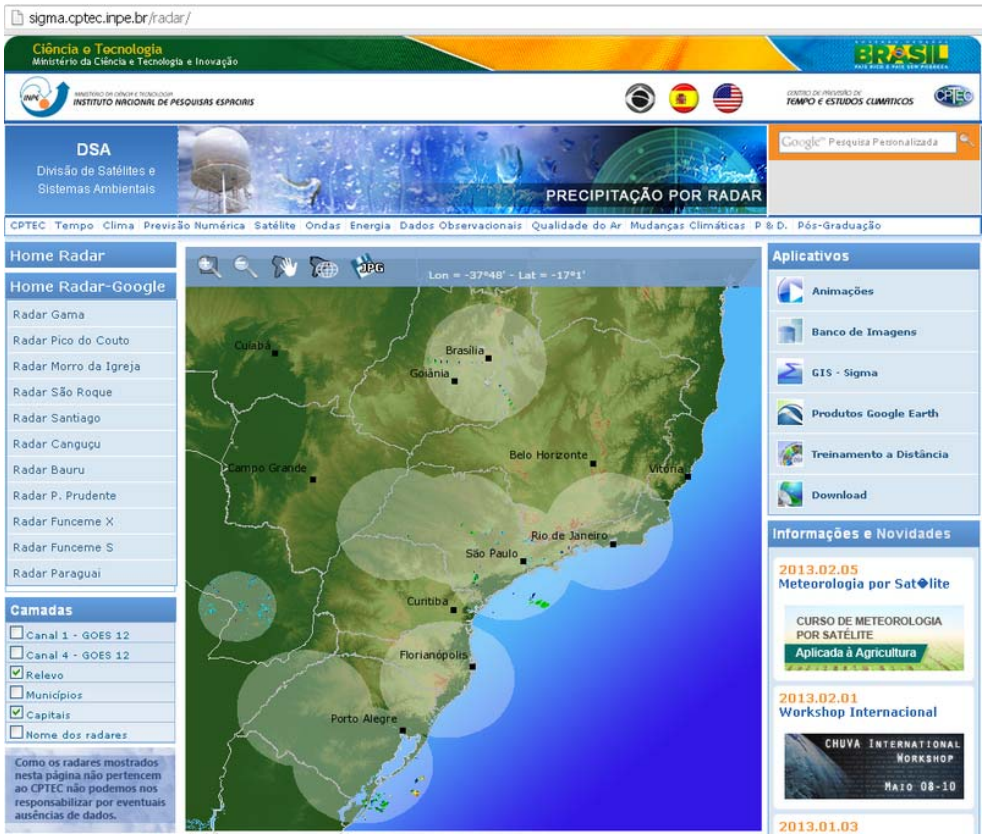
http://www.inameh.gob.ve/mosaicor.php

ECUADOR

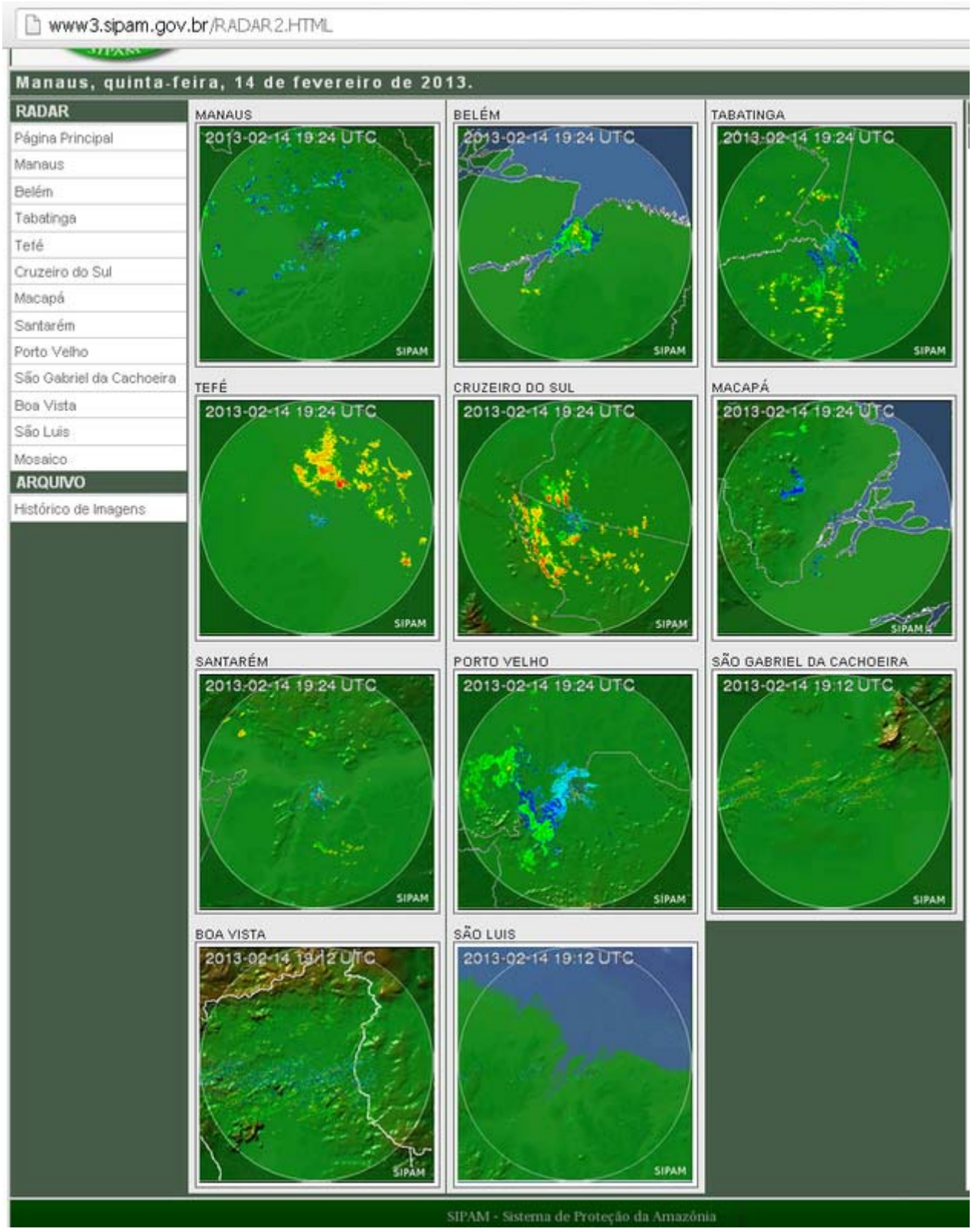
Ecuador is in the process of installing 3 radars located at: Mitaloma, Bellavista and El Troje.

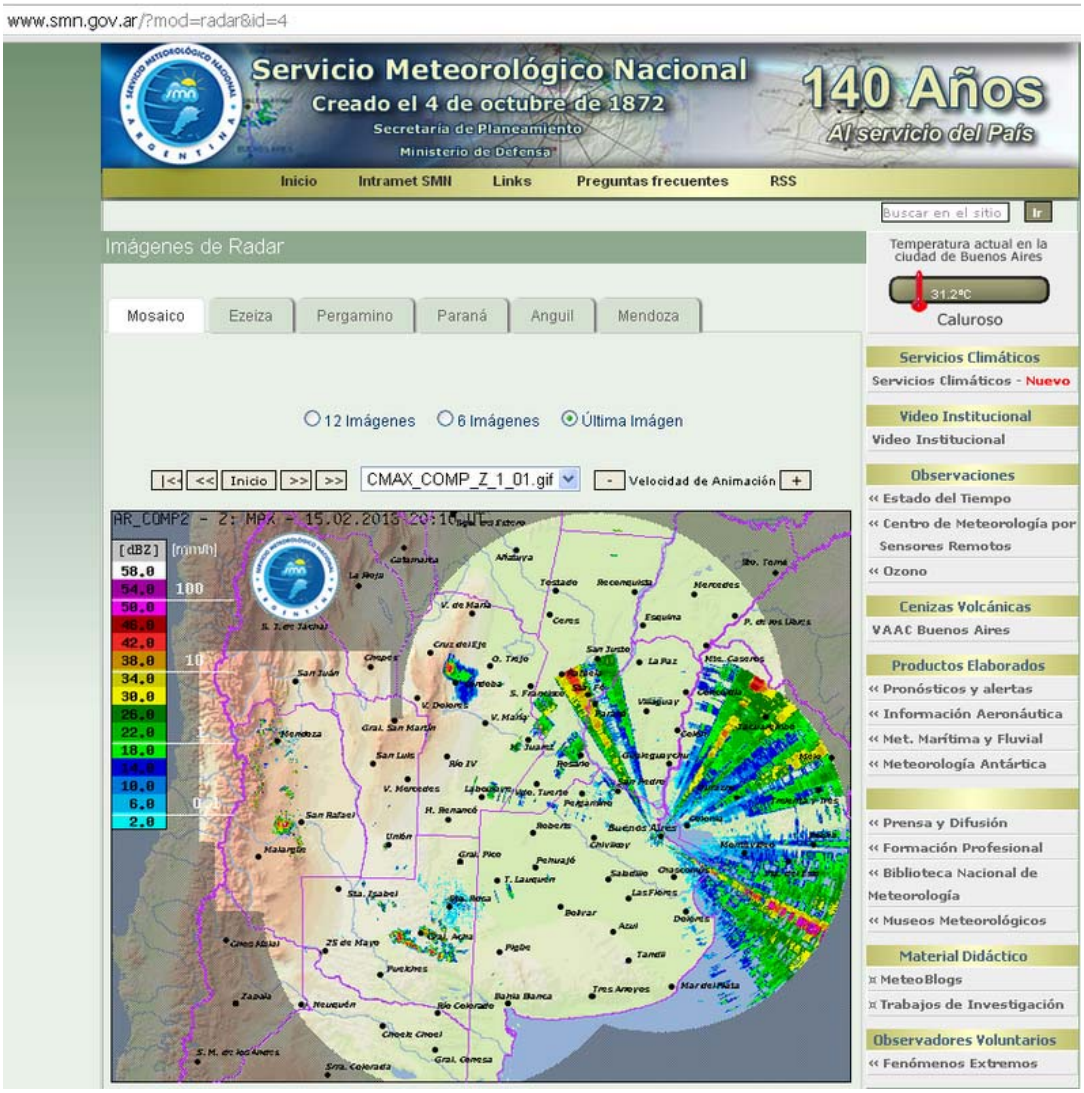
Bolivia, Chile, Uruguay, informed do not operate radar and do not have plans to do so.

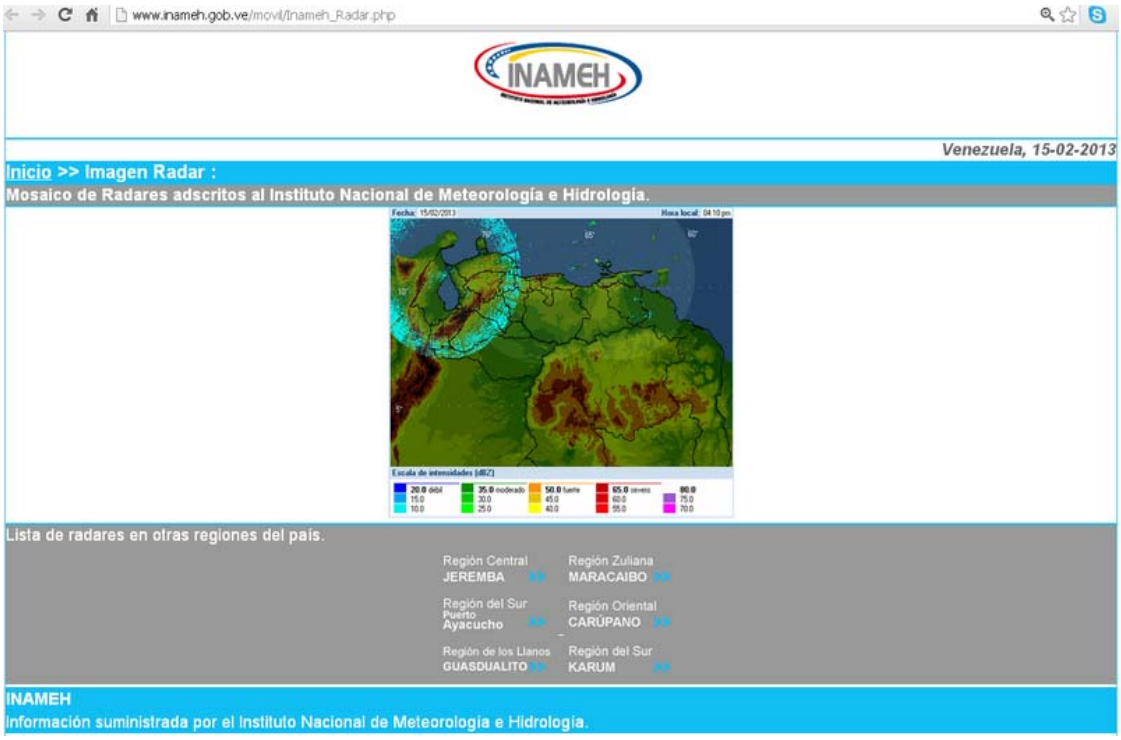
I could not get any information on the situation in Peru, Suriname, Guyana and French Guyana.

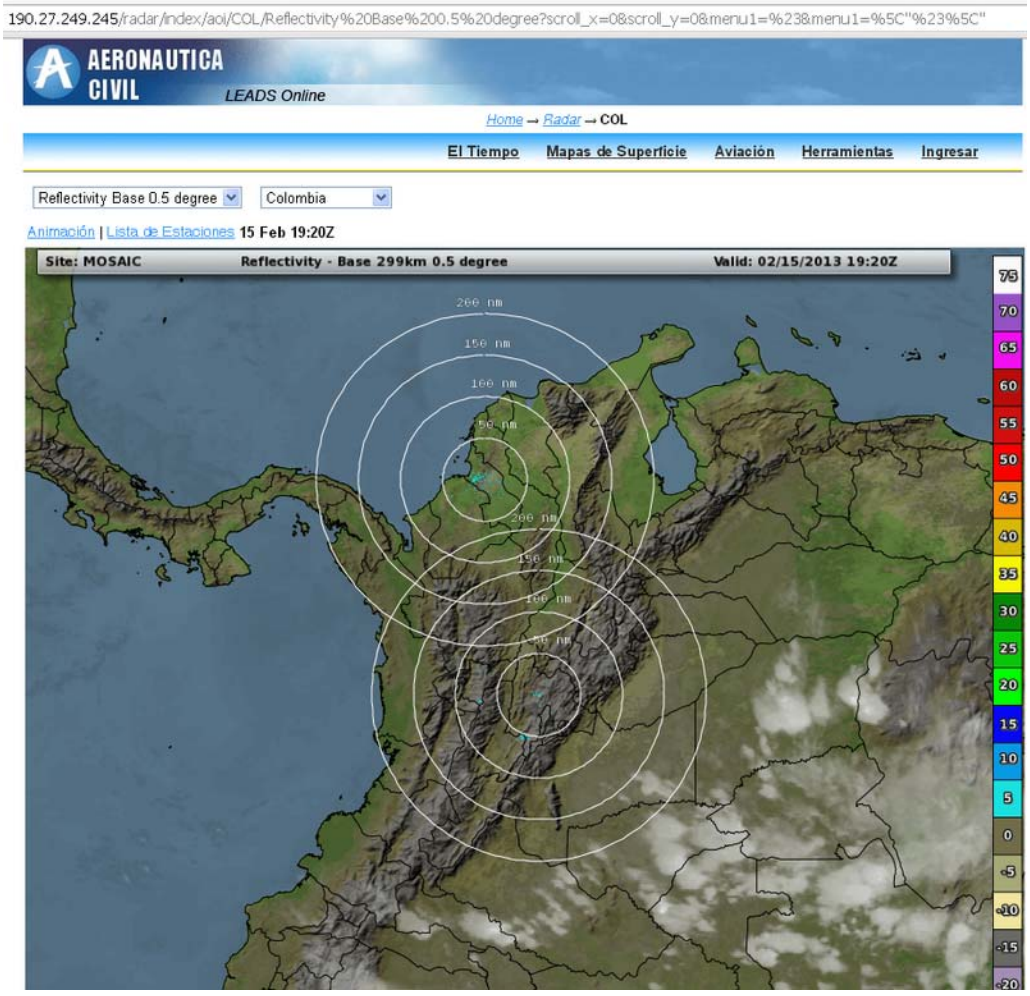

sigma.cptec.inpe.br/radar/
Ciência e Tecnologia
Ministério da Ciência e Tecnologia e Inovação
BRASIL
INSTITUTO NACIONAL DE PESQUISAS ESPACIAIS
CPTEC
DSA
Divisão de Satélites e Sistemas Ambientais
PRECIPITAÇÃO POR RADAR
CPTEC Tempo Clima Previsão Numérica Satélite Ondas Energia Dados Observacionais Qualidade do Ar Mudanças Climáticas P & D. Pós-Graduação
Home Radar
Home Radar-Google
Radar Gama
Radar Pico do Couto
Radar Morro da Igreja
Radar São Roque
Radar Santiago
Radar Canguçu
Radar Bauru
Radar P. Prudente
Radar Funceme X
Radar Funceme S
Radar Paraguai
Camadas
Canal 1 - GOES 12
Canal 4 - GOES 12
Relevo
Municípios
Capitais
Nome dos radares
Como os radares mostrados nesta página não pertencem ao CPTEC não podemos nos responsabilizar por eventuais ausências de dados.
Lon = -37°48' - Lat = -17°1'
Cuiabá
Brasília
Goiânia
Campo Grande
Belo Horizonte
Vitória
Rio de Janeiro
São Paulo
Curitiba
Florianópolis
Porto Alegre
Aplicativos
Animações
Banco de Imagens
GIS - Sigma
Produtos Google Earth
Treinamento a Distância
Download
Informações e Novidades
2013.02.05
Meteorologia por Sat◆lite
CURSO DE METEOROLOGIA POR SATÉLITE
Aplicada à Agricultura
2013.02.01
Workshop Internacional
CHUVA INTERNATIONAL WORKSHOP
MAIO 08-10
2013.01.03


w.redemet.aer.mil.br/radar/radar.php?ID_REDEMET=jk1ai8i10j8umdp3h0tp47kon2
DECEA
REDEMET
Rede de Meteorologia do Comando da Aeronáutica
Principal
Produtos
Serviços
Publicações
Cursos
Downloads
Links
Fale Conosco
14/02/2013 - 18:30(UTC)
Consulta Rápida
METAR
TAF
Enviar
Produtos Meteorológicos
Avisos de Cinzas Vulcânicas
Cartas Auxiliares
Cartas de Vento
Cartas SIGWX
Consulta Automática de Mensagens não Regulares (SIGMET - WO - SPECI)
Imagens de RADAR (RECENTE)
Mosaico Centro Sul
Atualizado em
.: MAXCAPPI 400Km
Produto desatualizado.
Gama/DF
Atualizado em
Pico do Couto/RJ
Atualizado em
.: MAXCAPPI 400Km 14/02/2013 às 18:15(UTC) 14/02/2013 às 18:15(UTC)
.: CAPPI 3100m 14/02/2013 às 18:01(UTC) 14/02/2013 às 18:01(UTC)
.: CAPPI 5500m 14/02/2013 às 18:01(UTC) 14/02/2013 às 18:01(UTC)
.: CAPPI 7300m 14/02/2013 às 18:01(UTC) 14/02/2013 às 18:01(UTC)
.: CAPPI 10400m 14/02/2013 às 18:16(UTC) 14/02/2013 às 18:01(UTC)
São Roque/SP
Atualizado em
Morro da Igreja/SC
Atualizado em
.: MAXCAPPI 400Km 14/02/2013 às 18:06(UTC) 14/02/2013 às 18:06(UTC)
.: CAPPI 3100m 14/02/2013 às 18:00(UTC) 14/02/2013 às 18:00(UTC)
.: CAPPI 5500m 14/02/2013 às 18:00(UTC) 14/02/2013 às 18:00(UTC)
.: CAPPI 7300m 14/02/2013 às 18:00(UTC) 14/02/2013 às 18:00(UTC)
.: CAPPI 10400m 14/02/2013 às 18:15(UTC) 14/02/2013 às 18:00(UTC)


www3.sipam.gov.br/RADAR2.HTML
Manaus, quinta-feira, 14 de fevereiro de 2013.
RADAR
Página Principal
Manaus
Belém
Tabatinga
Tefé
Cruzeiro do Sul
Macapá
Santarém
Porto Velho
São Gabriel da Cachoeira
Boa Vista
São Luis
Mosaico
ARQUIVO
Histórico de Imagens
MANAUS
2013-02-14 19:24 UTC
BELÉM
2013-02-14 19:24 UTC
TABATINGA
2013-02-14 19:24 UTC
TEFÉ
2013-02-14 19:24 UTC
CRUZEIRO DO SUL
2013-02-14 19:24 UTC
MACAPÁ
2013-02-14 19:24 UTC
SANTARÉM
2013-02-14 19:24 UTC
PORTO VELHO
2013-02-14 19:24 UTC
SÃO GABRIEL DA CACHOEIRA
2013-02-14 19:12 UTC
BOA VISTA
2013-02-14 19:12 UTC
SÃO LUIS
2013-02-14 19:12 UTC
SIPAM
SIPAM - Sistema de Proteção da Amazônia


www.smn.gov.ar/?mod=radar&id=4
Servicio Meteorológico Nacional
Creado el 4 de octubre de 1872
Secretaría de Planeamiento
Ministerio de Defensa
140 Años
Al servicio del País
Inicio
Intramet SMN
Links
Preguntas frecuentes
RSS
Buscar en el sitio
Ir
Imágenes de Radar
Mosaico
Ezeiza
Pergamino
Paraná
Anguil
Mendoza
12 Imágenes
6 Imágenes
Última Imágen
Inicio
CMAX_COMP_Z_1_01.gif
Velocidad de Animación
Temperatura actual en la ciudad de Buenos Aires
31.2ºC
Caluroso
Servicios Climáticos
Servicios Climáticos - Nuevo
Video Institucional
Video Institucional
Observaciones
Estado del Tiempo
Centro de Meteorología por Sensores Remotos
Ozono
Cenizas Volcánicas
VAAC Buenos Aires
Productos Elaborados
Pronósticos y alertas
Información Aeronáutica
Met. Marítima y Fluvial
Meteorología Antártica
Prensa y Difusión
Formación Profesional
Biblioteca Nacional de Meteorología
Museos Meteorológicos
Material Didáctico
MeteoBlogs
Trabajos de Investigación
Observadores Voluntarios
Fenómenos Extremos


www.inameh.gob.ve/movil/Inameh_Radar.php
INAMEH
Venezuela, 15-02-2013
Inicio >> Imagen Radar :
Mosaico de Radares adscritos al Instituto Nacional de Meteorología e Hidrología.
Lista de radares en otras regiones del país.
Región Central
JEREMBA
Región Zuliana
MARACAIBO
Región del Sur
Puerto Ayacucho
Región Oriental
CARÚPANO
Región de los Llanos
GUASDUALITO
Región del Sur
KARUM
INAMEH
Información suministrada por el Instituto Nacional de Meteorología e Hidrología.


190.27.249.245/radar/index/aoi/COL/Reflectivity%20Base%200.5%20degree?scroll_x=0&scroll_y=0&menu1=%23&menu1=%5C"%23%5C"
AERONAUTICA CIVIL
LEADS Online
Home → Radar → COL
El Tiempo
Mapas de Superficie
Aviación
Herramientas
Ingresar
Reflectivity Base 0.5 degree
Colombia
Animación | Lista de Estaciones 15 Feb 19:20Z
Site: MOSAIC
Reflectivity - Base 299km 0.5 degree
Valid: 02/15/2013 19:20Z
200 nm
150 nm
100 nm
50 nm
75
70
65
60
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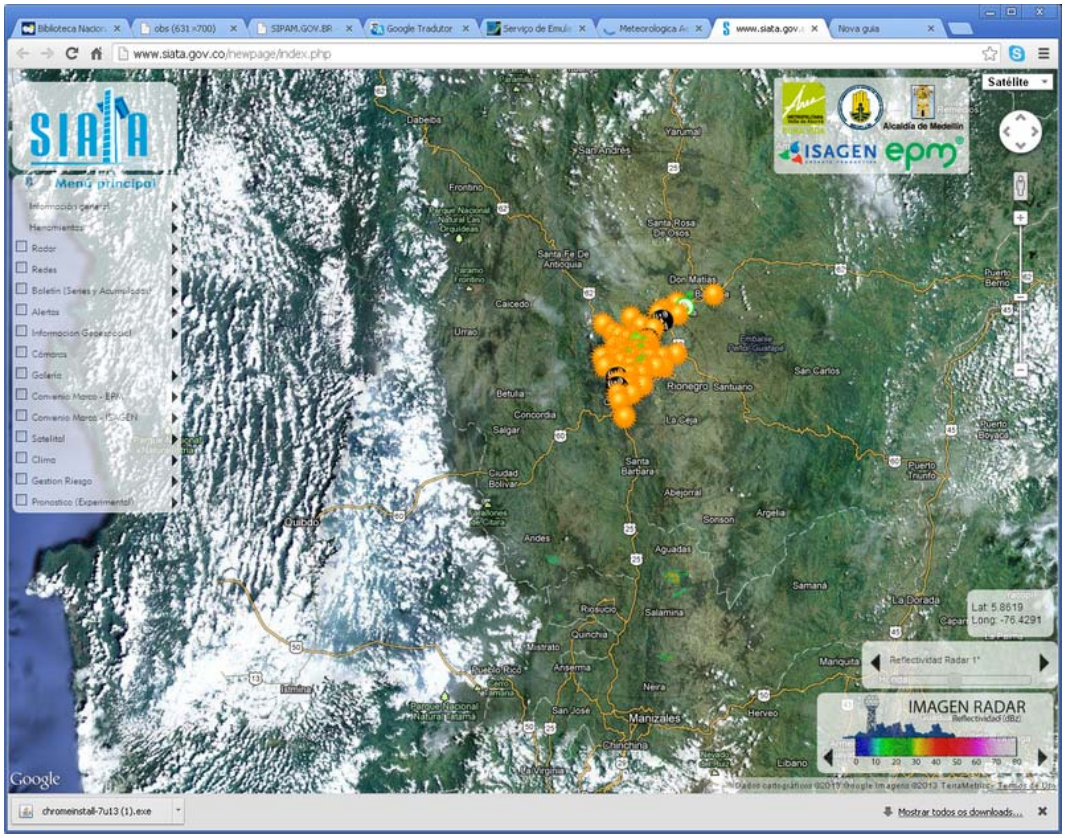
www.siata.gov.co/newpage/index.php
SIATA
Menú principal
Satélite
Alcaldía de Medellín
ISAGEN
epm
IMAGEN RADAR
Google