

International Charter Space and Major Disasters



Charter Activation 449

Charter Call ID 520

Disaster Event Flood

Disaster Location BRAZIL

Date of Final Reporting 20/05/2015

PM Report

*Reporting forms completed by: Rafael Pereira Machado

*Reporting forms reviewed by: Ivan Márcio Barbosa

Project Managers for Charter activations are expected to provide the PM report to the Charter Executive Secretariat within 45 days after the start of the activation.

A. Disaster Event Summary

*A1. Emergency type: Flood

*A2. Date disaster initiated: 27 February 2015

*A3. Disaster location and extent: BRAZIL (14200 km²)

A4. Estimated number of deaths: 0

A5. Estimated number of people affected: 120.000

A6. Estimated economic losses: R\$ 29,2 milion

A7. Additional disaster impacts (environmental, infrastructure, etc): the flood in this area rises slowly, allowing people to leave their houses with at least some personal belongings. The impact on the infrastructure is manageable, but before returning home, those families require aid for food and cleaning kits. The required aid has been provided by CENAD and other government agencies.

A8. Additional disaster event details: This flood surpassed the previous highest record for river level, since the register has begun. This kind of flood travels slowly downstream, affecting many cities successively, sometimes with many days of interval. The actual model of Disasters Charter activation allows three center points, but specifically in this kind of disaster those center points need to be updated to other cities downstream while the need for monitoring cease on the initial center points.

The dynamics of this kind of disaster differs from others because it is distributed over long time and travels down the river. The project manager had doubts about keeping the call open for the following cities or closing the call to wait, and then start another activation for the next cities if needed.

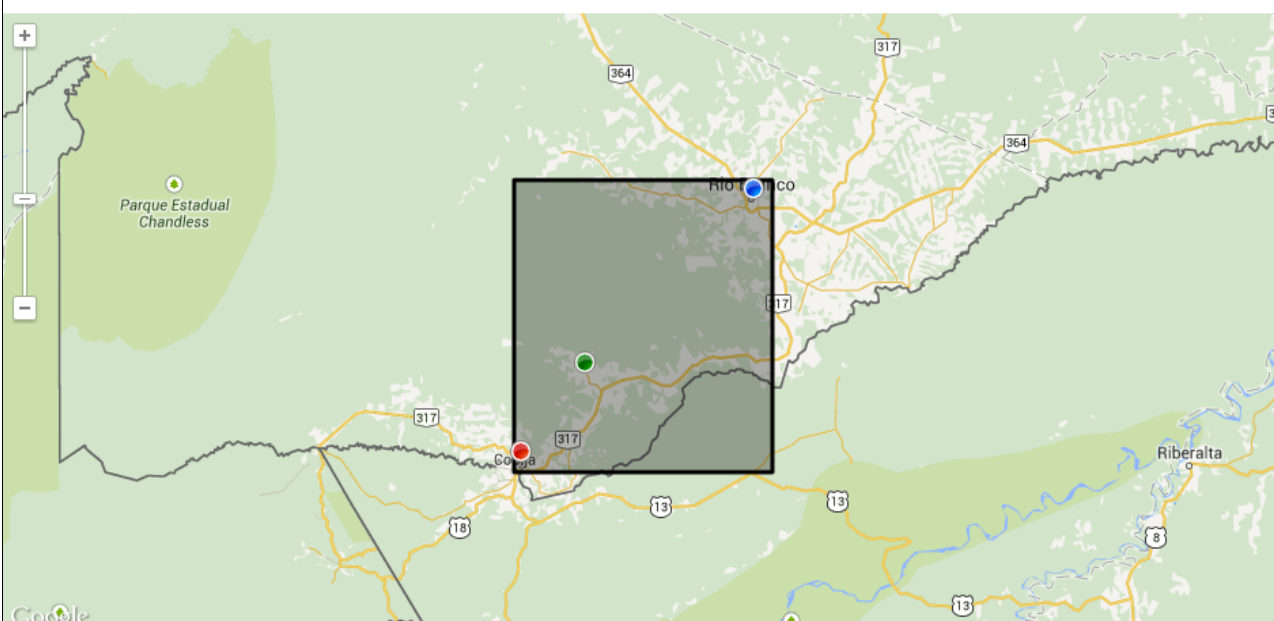
* mandatory

B. Activation Information Charter Call ID520

*B1. Date of Charter activation - 27/02/2015

*B2. Geographical Coordinates (Lat - Long)

Bounding Box:	Upper left corner: S 9° 54' , W 68° 47'	Centre Point(s):	(1): S 11° 0' , W 68° 45'
	Upper right corner: S 9° 54' , W 67° 44'		(2): S 10° 39' , W 68° 29'
	Lower left corner: S 11° 2' , W 68° 47'		(3): S 9° 58' , W 67° 49'
	Lower right corner: S 11° 2' , W 67° 44'		



*B3. Authorized User/Requestor: Rafael Pereira Machado	*Organization: BRAZILIAN DISASTER AND RISK MANAGEMENT NATIONAL CENTRE - CENAD	*Date AU contacted ODO: 27/02/2015
*B4. ECO: ECO_CNES ECO_CNES	*Organization: CNES	*Date ECO contacted PM: 27/02/2015
*B5. Project Manager: Rafael Pereira Machado	*Organization: BRAZILIAN DISASTER AND RISK MANAGEMENT NATIONAL CENTRE - CENAD	*Date PM nominated: 27/02/2015
B6. Value-adding Reseller or organization(s):		Date VAR received first images (dd/mm/yyyy): 01/03/2015
*B7. End User(s): Rafael Pereira Machado	*Organization: BRAZILIAN DISASTER AND RISK MANAGEMENT NATIONAL CENTRE - CENAD	Date first product delivered to End User (dd/mm/yyyy): 03/03/2015

* mandatory

C. Intervention Summary

*C1. Describe the activation in detail and describe the interaction between the PM and the AU:

In this activation, the Authorized User and the Project Manager were the same person and organization. The decision for the activation was taken by the Disaster Managers at CENAD. Rafael Machado was nominated as the Project Manager and Lucas Mikosz as the substitute in case of need.

*C2. Provide a chronology of events associated with the disaster and the Charter activation:

Call 520:

AU call submission on 27 Feb 2015 15:11:25

ECO URF validation on 27 Feb 2015 15:55:50

ERF v.1.0 sent to MPP of ESA on 27 Feb 2015 17:27:08

ERF v.1.0 sent to MPP of CNES on 27 Feb 2015 17:53:58

ERF v.1.0 sent to MPP of USGS on 27 Feb 2015 18:15:19

ERF v.1.0 sent to MPP of CSA on 27 Feb 2015 18:32:35

ERF v.1.0 sent to MPP of DLR on 27 Feb 2015 18:58:42

ERF v.1.0 sent to MPP of ISRO on 27 Feb 2015 19:07:26

ERF v.1.0 sent to MPP of ROSCOSMOS on 27 Feb 2015 19:29:15

ERF v.1.0 sent to MPP of KARI on 27 Feb 2015 19:41:56

AAP received from MPP of ROSCOSMOS on 27 Feb 2015 21:09:55

Data Product received from MPP of DLR on 28 Feb 2015 16:37:17

Data Product received from MPP of ROSCOSMOS on 02 Mar 2015 17:37:13

PM nominated on 03 Mar 2015 14:28:01

*C3. Fill in the table below identifying the available satellite data with an [X]. List the date (mm/dd/yyyy) that each image was collected).

Agency	Satellite Instrument Mode	Sensing dates of requested products	Date of:	Sensing / Reception dates of metadata / products			
				Attempt 1	Attempt 2	Attempt 3	Archive
DLR	TerraSAR-X SAR SL	02/03/2015	Reception	03/03/2015			
			Sensing	02/03/2015			
DLR	TanDEM-X SAR SM	(Archive) 18/02/2014	Reception				03/03/2015
			Sensing				18/02/2014
ROSCOSMOS	Kanopus-V MSS	01/03/2015	Reception	03/03/2015			
			Sensing	01/03/2015			
ROSCOSMOS	Kanopus-V MSS	12/03/2015	Reception	12/03/2015			
			Sensing	12/03/2015			
ROSCOSMOS	Kanopus-V PSS	01/03/2015	Reception	03/03/2015			
			Sensing	01/03/2015			
ROSCOSMOS	Kanopus-V PSS	12/03/2015	Reception	12/03/2015			
			Sensing	12/03/2015			
ROSCOSMOS	RESURS_P Geoton-L1	01/03/2015	Reception	03/03/2015			
			Sensing	01/03/2015			
ROSCOSMOS	RESURS_P Geoton-L1	04/03/2015	Reception	04/03/2015			
			Sensing	04/03/2015	07/03/2015	10/03/2015	13/03/2015
CSA	RADARSA T-2	02/03/2015	Reception	02/03/2015			
			Sensing	02/03/2015			
CSA	RADARSA T-2	06/03/2015	Reception	06/03/2015			
			Sensing	06/03/2015			
CSA	RADARSA T-2	03/06/2013	Reception				06/03/2015
			Sensing				03/06/2013
CSA	RADARSA T-2	13/09/2013	Reception				06/03/2015
			Sensing				13/09/2013
CNES	Pleiades FR1 PX	02/03/2015	Reception	02/03/2015			
			Sensing	02/03/2015			
CNES	Pleiades FR1 PX	01/03/2015	Reception	01/03/2015			
			Sensing	01/03/2015			
ISRO	RI1 S	03/03/2015	Reception	03/03/2015			
			Sensing	03/03/2015			
CNES	Pleiades FR1 PX	09/03/2015	Reception	09/03/2015			
			Sensing	09/03/2015			
USGS	Landsat 8	27/03/2015	Reception	02/03/2015			
			Sensing	27/02/2015			
USGS	Landsat 8	27/03/2015	Reception	02/03/2015			
			Sensing	27/02/2015			
USGS	Worldview 2 MSI	13/06/2013	Reception				02/03/2015
			Sensing				13/06/2013
USGS	Worldview 2 MSI	13/06/2013	Reception				02/03/2015
			Sensing				13/06/2013
USGS	Worldview 2 MSI	13/06/2013	Reception				02/03/2015
			Sensing				13/06/2013
USGS	Worldview 2 MSI	13/06/2013	Reception				02/03/2015
			Sensing				13/06/2013

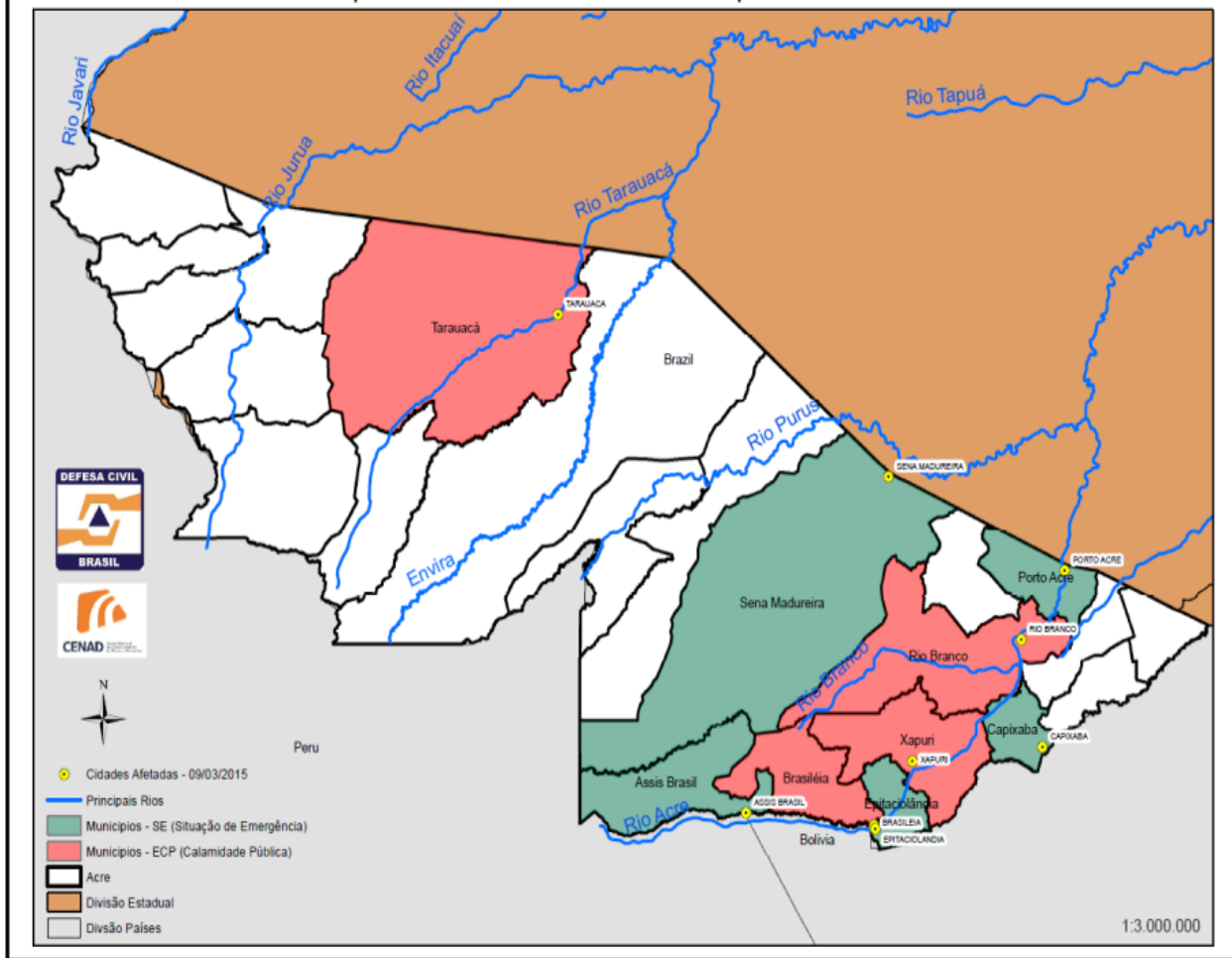
USGS	Worldview 2 MSI	13/06/2013	Reception				02/03/2015
			Sensing				13/06/2013
USGS	Worldview 2 MSI	13/06/2013	Reception				02/03/2015
			Sensing				13/06/2013
USGS	Worldview 2 MSI	13/06/2013	Reception				02/03/2015
			Sensing				13/06/2013
USGS	Worldview 2 MSI	13/06/2013	Reception				02/03/2015
			Sensing				13/06/2013
USGS	Worldview 2 MSI	13/06/2013	Reception				02/03/2015
			Sensing				13/06/2013
USGS	Worldview 2 MSI	13/06/2013	Reception				02/03/2015
			Sensing				13/06/2013
USGS	Worldview 2 MSI	13/06/2013	Reception				02/03/2015
			Sensing				13/06/2013
USGS	Worldview 2 MSI	15/03/2015	Reception	18/03/2015			
			Sensing	15/03/2015			
USGS	Worldview 2 MSI	15/03/2015	Reception	18/03/2015			
			Sensing	15/03/2015			
USGS	Worldview 2 MSI	15/03/2015	Reception	18/03/2015			
			Sensing	15/03/2015			
USGS	Worldview 2 MSI	15/03/2015	Reception	18/03/2015			
			Sensing	15/03/2015			
USGS	Landsat 8	15/03/2015	Reception	18/03/2015			
			Sensing	15/03/2015			
USGS	Landsat 8	15/03/2015	Reception	18/03/2015			
			Sensing	15/03/2015			
USGS	Landsat 8	16/03/2015	Reception	18/03/2015			
			Sensing	15/03/2015			
USGS	Landsat 7	08/03/2015	Reception	08/03/2015			
			Sensing	09/03/2015			
USGS	Landsat 8	07/03/2015	Reception	07/03/2015			
			Sensing	09/03/2015			
CSA	RADARSA T-2	13/03/2015	Reception	13/03/2015			
			Sensing	13/03/2015			
USGS	EO-1	15/03/2015	Reception	18/03/2015			
			Sensing	13/03/2015			
USGS	EO-1	15/03/2015	Reception	18/03/2015			
			Sensing	13/03/2015			

* mandatory

E. Supporting Documentation

*E1. Insert a map of the affected area and extent of the disaster impact:

Mapa do Desastre Acre - Municípios Afetados



*E2. Provide samples of media coverage of the disaster event from TV, radio, news papers, websites, etc. Where possible, copy the content of the article into the PM report rather than only the web addresses:

<http://g1.globo.com/ac/acre/noticia/2015/02/com-pior-enchente-da-historia-brasileia-decreta-calamidade.html>

23/02/2015 19h41 - Atualizado em 23/02/2015 21h49

Com pior enchente da história, Brasiléia, AC, decreta calamidade

Com 14,85 metros, nível do rio ultrapassa marca de 2012. Mais de 1,8 mil pessoas tiveram que deixar suas casas.

Do G1 AC



Cheia do Rio Acre atinge 100% de Brasiléia (Foto: Andrey Santana/ Secom Acre)

A cheia do Rio Acre atingiu nesta segunda-feira (23), 100% da cidade de **Brasiléia** (AC), distante 232 km de Rio Branco. Considerada a pior cheia da história da cidade, a prefeitura do município decretou estado de calamidade pública. O nível do manancial atingiu 14,85 metros nesta segunda, marca superior à registrada em 2012 (14,77).

saiba mais

Cheia atinge mais de 1,6 mil e Brasiléia deve decretar calamidade

Governo decreta situação de emergência no interior do AC

Enchente atinge mais de 600 famílias em Brasiléia, diz Defesa Civil

Nível do rio chega a 15,59 metros e Xapuri declara estado de emergência

De acordo com o governo do estado, 13 bairros foram atingidos diretamente pela cheia, parte da energia foi suspensa, o sistema bancário caiu e a comunicação via celular de três operadoras está interrompida. O número de famílias afetadas chega a 577, entre desabrigadas e desalojadas. Um total de 1.880 pessoas. Dentre o quantitativo de famílias, 251 estão desabrigadas. O rio está 3,41 metros acima da cota de transbordamento, que é de 11,40 metros. Em Epitaciolândia, cidade vizinha, 60 famílias estão desabrigadas e 702 pessoas foram atingidas.

Por causa da cheia, o hospital Raimundo Chaar, localizado na Rua Prefeito Rolando Moreira, um dos locais atingidos pela enchente, está atendendo apenas procedimentos de urgência e emergência, de acordo com a Secretaria de Saúde do estado.

A água também invadiu outros órgãos públicos, como o INSS, o Tribunal de Justiça, prédio do TRE.

Na noite desta segunda-feira (23), a Eletrobras Distribuição Acre interrompeu o fornecimento de energia para toda a cidade de Brasiléia. De acordo com a concessionária, a interrupção tem previsão para durar cerca de três horas, até que a Defesa Civil faça a limpeza dos balseiros na ponte que liga a cidade à Epitaciolândia.



Brasília está tomada pelas águas do Rio Acre (Foto: Gleilson Miranda/Secom Acre)

Xapuri decreta estado de emergência

A cerca de 44 km de Brasília, no município acreano de Xapuri, a **Prefeitura decretou estado de emergência**, nesta segunda-feira (23). Depois que o nível do Rio Acre chegou a 15,59 metros, ficando mais de dois metros acima da cota de transbordamento de 13,40 metros e cobrindo cerca de 15% da área urbana da cidade.

Ao todo, 280 famílias foram atingidas pela cheia no município, destas, 82 precisaram ser retiradas de suas casas. Nos abrigos públicos, encontram-se 59 famílias, o restante está na casa de amigos ou parentes.

De acordo com o prefeito de Xapuri, Marcinho Miranda, a tendência é que assim como em Brasília, o rio continue a subir. "Está chovendo muito na região e dificilmente teremos vazante agora. O rio está subindo cerca de quatro centímetros por hora, estamos muito preocupados porque a situação está se agravando", afirma.

<http://g1.globo.com/ac/acre/noticia/2015/03/veja-espacos-publicos-de-rio-branco-antes-e-depois-da-cheia-historica.html>

06/03/2015 07h00 - Atualizado em 06/03/2015 14h47

Veja espaços públicos de Rio Branco antes e depois da cheia histórica

Confira alguns dos pontos históricos da capital acreana nos dois momentos. Cidade enfrenta a pior enchente da história do estado.

Do G1 AC



A cidade de **Rio Branco** vive a maior enchente da história do estado desde o domingo (1), quando o Rio Acre ultrapassou a maior cota registrada, de 17,66 metros no ano de 1997. O maior nível atingido pelas águas foi de 18,40 metros, na quarta-feira (4). Às 23h do mesmo dia, o rio começou a apresentar vazante. O **G1** selecionou alguns dos principais pontos de Rio Branco antes e depois de serem atingidos pela força das águas.

1. Calçadão da Gameleira

O calçadão da Gameleira, um dos principais pontos turísticos de Rio Branco, onde estão localizados o mastro da bandeira, Fundação Elias Mansour (FEM) e o Cine Teatro Recreio, foi tomado pelas águas do Rio Acre.



Calçada da Gameleira antes e depois de ser coberto pelas águas do Rio Acre (Foto: Reprodução Google Street View e Iryá Rodrigues/G1)

2. Ponte Juscelino Kubitschek

A água também chegou até a pista da ponte Juscelino Kubitschek, conhecida por Ponte Metálica. O local foi interditado e recebeu caçambas carregadas com britas para fazer peso e evitar danos à estrutura. Cada veículo carregado possui o peso aproximado de 25 toneladas.



Ponte Metálica antes e depois da cheia histórica (Foto: Reprodução Google Street View e Iryá Rodrigues/G1)

3. Seis de Agosto

O bairro Seis de Agosto, um dos mais antigos de Rio Branco e palco da Revolução Acreana, é um dos primeiros afetados pela cheia, pela proximidade com o Rio Acre.



Bairro Seis de Agosto foi um dos primeiros atingidos pela enchente (Foto: Reprodução Google Street View e Marcos Vicenti/Ascom Prefeitura de Rio Branco)

4. Terminal Urbano

A entrada do Terminal Urbano de Rio Branco, localizado na Avenida Ceará, ficou coberta pelas águas do Rio Acre. O local precisou ser interditado e as operações de embarque e desembarque de passageiros foram remanejados para outros pontos.



Água inundou a entrada do Terminal Urbano nesta quarta-feira (4) (Foto: Reprodução Google Street View e Duaine Rodrigues/G1)

5. Calçada da Rua Benjamin Constant

O Calçada da Rua Benjamin Constant, no Centro da cidade, onde funciona o camelódromo foi invadido pelas águas. A energia no local precisou ser cortada e os comerciantes locais reclamam de prejuízos.



Calçadão da Rua Benjamin Constant, em Rio Branco. (Foto: Janine Brasil e Caio Fulgêncio/G1)

Calamidade pública

A Secretaria Nacional de Proteção e Defesa Civil (Sedec) **reconheceu nesta quarta-feira (4) o estado de calamidade pública** por rito sumário para as cidades de Rio Branco e Brasileia.

Com isso, as ações de resposta devem ser feitas com mais agilidade. **A portaria foi publicada no Diário Oficial da União desta quinta-feira (5)**. O Ministério da Defesa prometeu, nesta quarta-feira (4) ao governador Tião Viana o envio de homens do Exército Brasileiro para dar apoio logístico à população durante a cheia.

<http://floodlist.com/america/brazil-floods-acre-river-rio-branco>

Brazil Floods – Acre River Reaches Record Levels in Rio Branco

MARCH 5, 2015 BY [RICHARD DAVIES](#) IN [AMERICAS](#), [NEWS](#) - [0 COMMENT](#)



Floods have been affecting thousands of people in the state of Acre, northern [Brazil](#), since 23 February 2015, when some of the state's rivers, in particular the River Acre, overflowed.

Further heavy rainfall has forced river levels higher still, and on 03 March 2015 Brazil's federal government declared a state of emergency in Acre.

One of the worst affected areas is the state capital, Rio Branco. By early evening (local time) yesterday 04 March 2015, levels of the River Acre reached a record 18.40 metres. Flood stage is thought to be 14 metres. Geological Survey of Brazil (CPRM) were expecting levels to rise further still over the next 12 hours.



Floods in Rio Branco, Acre, Brazil. Photo: Sérgio Vale/ Secom (03/03/2015)

The current flood situation has been described as the worst in 132 years. The government of Acre has said that, although exact numbers are difficult to verify, almost 90,000 people have been affected by the floods in the state since they first began in late February.

53 neighborhoods in the city have been affected by the floods. At least 30 rural communities across the state have also been flooded. One person has died after she was electrocuted entering her flooded home in Rio Branco.

Currently there are 9,251 people staying in one of the 26 shelters in Rio Branco set up for those displaced by the floods. There are around over 4,000 people thought to have evacuated their homes to stay with relatives or friends.

Levels of the Iaco River, also in Acre state, are extremely high and have flooded areas nearby, including Sena Madureira, where over 350 people have been displaced and are staying in temporary camps.

The River Acre runs forms parts of the border between Brazil and Bolivia. In late February the river caused **flooding in Bolivia's Pando department**. At the time, the mayor of San Pedro de Bolpebra, a small town on the banks of the River Acre, said that his community had been almost completely swept away by flood waters.

"The river waters rose to 14m [46ft] above their normal level, so between the community and the authorities we have decided to rebuild a new town to avoid more damage" he **said**.



Related



Brazil Floods – 10,000 Remain in Shelters in Rio Branco, Acre State



Brazil Floods - Acre River Levels Fall as Clean Up Begins



Brazil Floods - 20,000 Affected in Boca do Acre after Purus River Overflows

<http://news.yahoo.com/floods-hit-city-brazils-amazon-jungle-state-amazonas-184138475.html>

Trending News [Bobbi Kristina Brown](#) [American Airlines](#) [Monica Lewinsky](#) [Wood bison](#) [Ellen Pao](#)

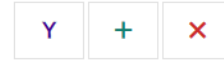
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UMA AVENTURA
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Floods hit city in Brazil's Amazon jungle state of Amazonas

AP March 17, 2015 2:41 PM



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SAO PAULO (AP) — Brazilian civil defense officials say more than 20,000 people have been affected by flooding in the city of Boca do Acre in Brazil's northern state of Amazonas.

The state's Civil Defense Department says on its website that the Purus River overflowed its banks a few days ago and flooded eight of the city's nine neighborhoods.

It says 36 tons of emergency supplies including food, potable water, medicine, mattresses and hammocks have been distributed in the city of 31,000 people.

More than 70 families with nowhere to go were sheltered in tents provided by the Civil Defense Department. There is no other mention of people being forced to leave their homes.

Calls to Boca do Acre's city hall, to the Amazonas state government and to the Civil Defense department went unanswered.

What don't you like about this ad?

Send

*E3. Insert a copy of the URF here:

User Request Form

(Affected area information)

Call ID 520

1. Date and time of the call 27 February 2015 11:03:38 UTC-03:00 (27 February 2015 14:03:38 UTC)

2a. Name of the Organisation and Authorised User or Cooperating Body

Organization BRAZILIAN DISASTER AND RISK MANAGEMENT NATIONAL CENTRE - CENAD
 Name Rafael Pereira Machado
 Phone +55 61 3214-0620
 Fax
 Mail lucas.mikosz@integracao.gov.br; rafaelmachado.mi@gmail.com;

2b. Name of the Organisation and End User

Organization BRAZILIAN DISASTER AND RISK MANAGEMENT NATIONAL CENTRE - CENAD
 Name Rafael Pereira Machado
 Phone +55 61 3214-0620
 Fax
 Mail lucas.mikosz@integracao.gov.br; rafaelmachado.mi@gmail.com;

3. Type of disaster

- earthquake ice ocean wave (tsunami)
 fire landslide oil spill
 flood ocean storm (hurricane, cyclone, typhoon) volcano

Other:

4. Geographical location

5. Geographical Coordinates in Degrees, minutes, seconds

Region / Country name,
approximate geographical
location and surface extentRegion/Country name:
NORTH BRAZIL/ACRE /
BRAZIL

Location

From

Brazili ia/AC

To

Rio Branco/AC

Extent (km2)

14200

a) Center Point(s) in priority order

Lat: 11° 0' 6" S

Long: 68° 45' 24" W

Lat: 10° 39' 22" S

Long: 68° 29' 57" W

Lat: 9° 58' 48" S

Long: 67° 49' 12" W

b) Upper left

Lat: 9° 54' 5" S

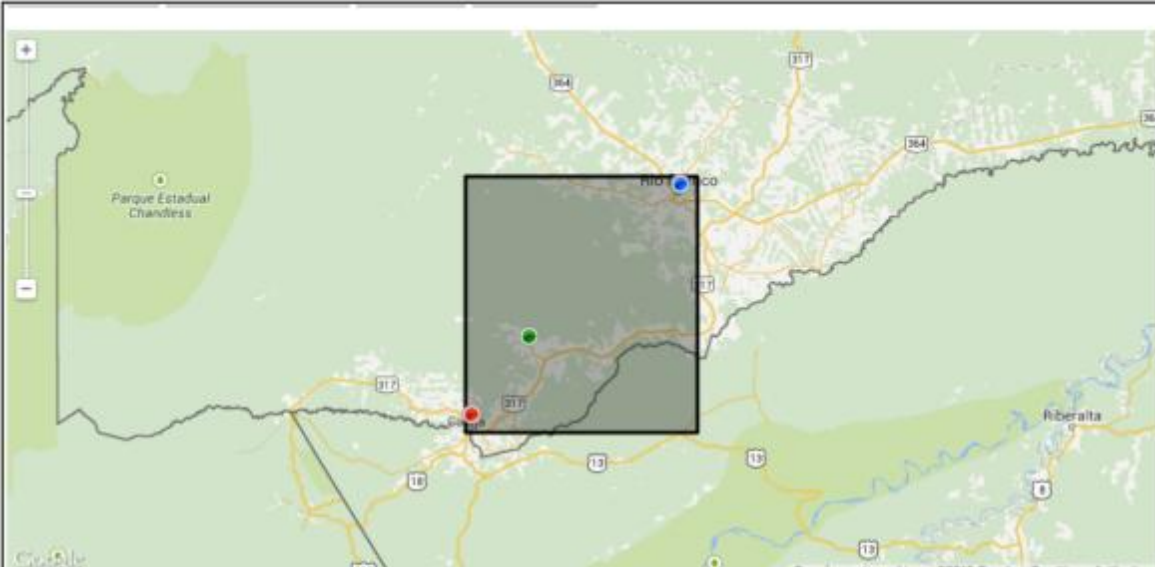
Long: 68° 47' 6" W



Lower right

Lat: 11° 2' 13" S

Long: 67° 44' 28" W



6. Aproximate date/time of occurrence or predicted occurrence
 23 February 2015 11:10:12 UTC-03:00 (23 February 2015 14:10:12 UTC) Occurred

7. Additional information on the disaster
 Since 23th of February the cities along Acre River are being affected by major floodings. The city of Brasiléla, for example, records the worst flood in the history data. By rainfall recorded in the last days in the catchment area of the basin and hydro-meteorological forecasts, floods tend to get worse in the affected locations, and reach a larger number of cities.
 The extensive polygon required, is justified due to the large area of flooding and bigger number of affected cities.

8. Additional Instructions (shipping instructions)
 Due to the emergency situation the images are needed in near real time. Download can be done via internet.
 Due to atmosphere conditions satellite radar images are more appropriate.

Submitted by AU Other

*E4. Provide a copy of the Emergency Data Request Submission forms for the various satellites:

EMERGENCY REQUEST FORM – (common part)

Date	27 February 2015	Call ID: 520
ECO on-duty		
Name	ECO_CNES ECO_CNES	
Agency		
Phone		
Fax		
Mail	charter.cnes-eco@cnes.fr	
AU		
Organization	BRAZILIAN DISASTER AND RISK MANAGEMENT NATIONAL CENTRE - CENAD	
Name	Rafael Pereira Machado	
Phone	+55 61 3214-0620	
Fax		
Mail	lucas.mikosz@integracao.gov.br; rafaelmachado.mi@gmail.com;	
EU		
Organization	BRAZILIAN DISASTER AND RISK MANAGEMENT NATIONAL CENTRE - CENAD	
Name	Rafael Pereira Machado	
Phone	+55 61 3214-0620	
Fax		
Mail	lucas.mikosz@integracao.gov.br; rafaelmachado.mi@gmail.com;	
Emergency type		
<input type="checkbox"/> earthquake <input type="checkbox"/> ice <input type="checkbox"/> ocean wave (tsunami) <input type="checkbox"/> fire <input type="checkbox"/> landslide <input type="checkbox"/> oil spill <input checked="" type="checkbox"/> flood <input type="checkbox"/> ocean storm (hurricane, cyclone, typhoon) <input type="checkbox"/> volcano		
Other:		
Area Details		
Geographical location	Geographical Coordinates in Degrees, minutes, seconds	
Region / Country name, approximate geographical location and surface extent	a) Center Point(s) in priority order	b) Upper left
	Lat: 11° 0' 6" S	Lat: 9° 54' 5" S
Region/Country name: NORTH BRAZIL/ACRE / BRAZIL	Long: 68° 45' 24" W	Long: 68° 47' 6" W
	Lat: 10° 39' 22" S	<div style="border: 1px solid black; width: 150px; height: 60px; margin: 0 auto;"></div>
Location From Braziléia/AC	Long: 68° 29' 57" W	
To Rio Branco/AC	Lat: 9° 58' 48" S	Lower right
Extent (km2) 14200	Long: 67° 49' 12" W	Lat: 11° 2' 13" S
		Long: 67° 44' 28" W



*E5. Provide a copy of any user feedback forms submitted by the end users or email correspondence regarding the end use(s).

In the context of disaster followed by activation of the International Disasters Charter, CENAD plays three simultaneous roles: Authorized Operator, Project Manager and End User.

In the role of Authorized Operator, the Cenad monitors natural disasters in Brazil and decide, in joint operation with INPE, in which time the situation is suitable for the international protocol activation.

The present Call was the first experience of CENAD as Project Manager. In Brazil, until then, this function had only been carried out by INPE. With the training of CENAD's staff for this task, Brazil now has two teams able to play this role.

As End User, CENAD uses the information obtained in the Charter to scale the gravity of the situation in remote areas and calculate the necessary aid efforts. At this stage, the team processes the data obtained by the Charter and supplies information to the relief teams, humanitarian assistance of the own structure of Cenad and the National Protection and Civil Defense Secretariat, and even the administrative and political decision-making spheres of the country.

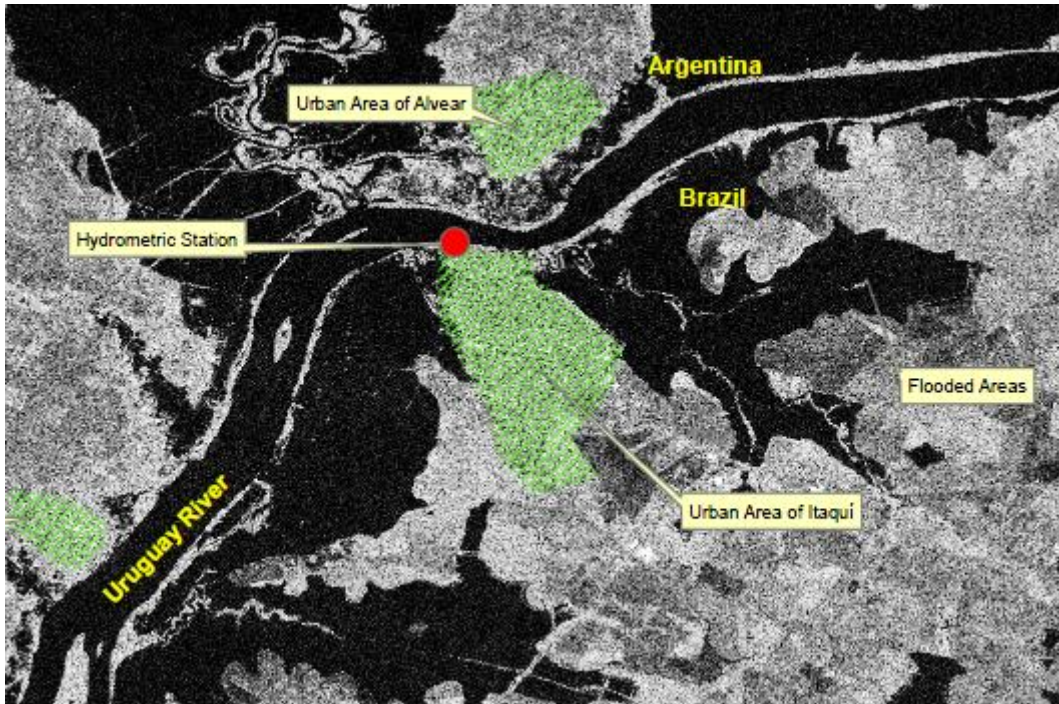
Call 520 allowed CENAD to test a new methodology of work, which involves the crossing of remote sensing data provided by charter with the census information that Brazilian Institute of Geography and Statistics (IBGE) has across the country. This methodology resulted in a fast preliminary calculation of people affected by the disaster, which along the relief work and assistance proved to be very close to reality.

This experience has enabled better use of the data acquired in the images provided by the Charter.

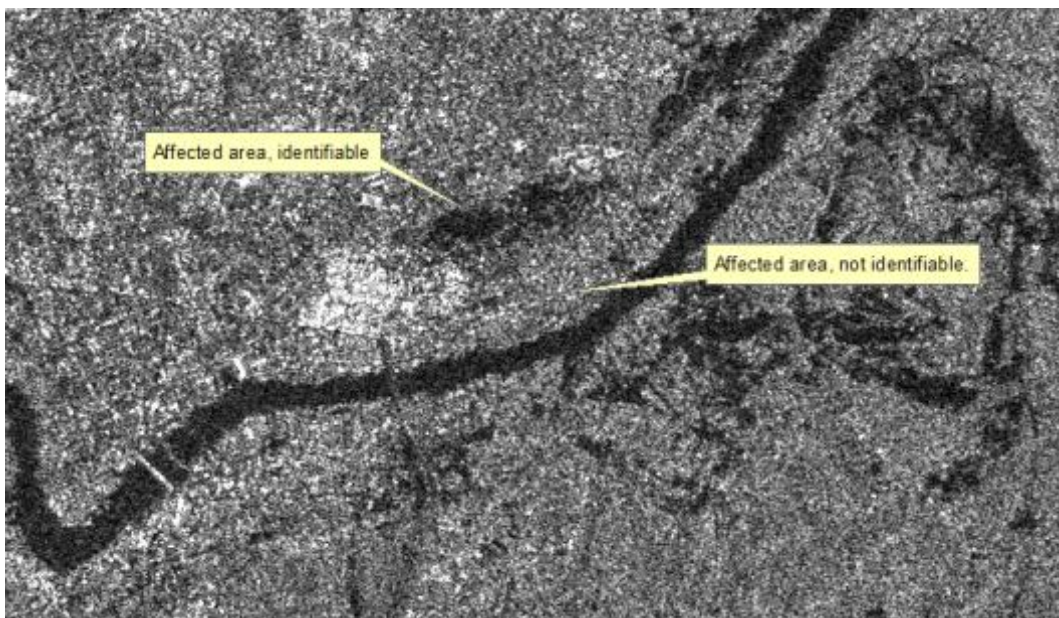
In previous activations charter to flooding, the images that were most useful for CENAD were generated by RADAR, since they ignore the cloud cover and allow easy identification of the water surface. However, in this current test the radar images did not show as positive as expected results.

The water surface feedback was not as easy to identify as it was on Call 425. The floods that resulted in 425 Activation occurred in a region of plains with low vegetation, making it easier to

delimit the affected areas without the need of image processing, as seen on the example below:



Charter Activation 425 value added product, with Radar data provided by ESA, Sentinel-1 at July 8th, 2014. Flooded areas can be identified by the darker spots.



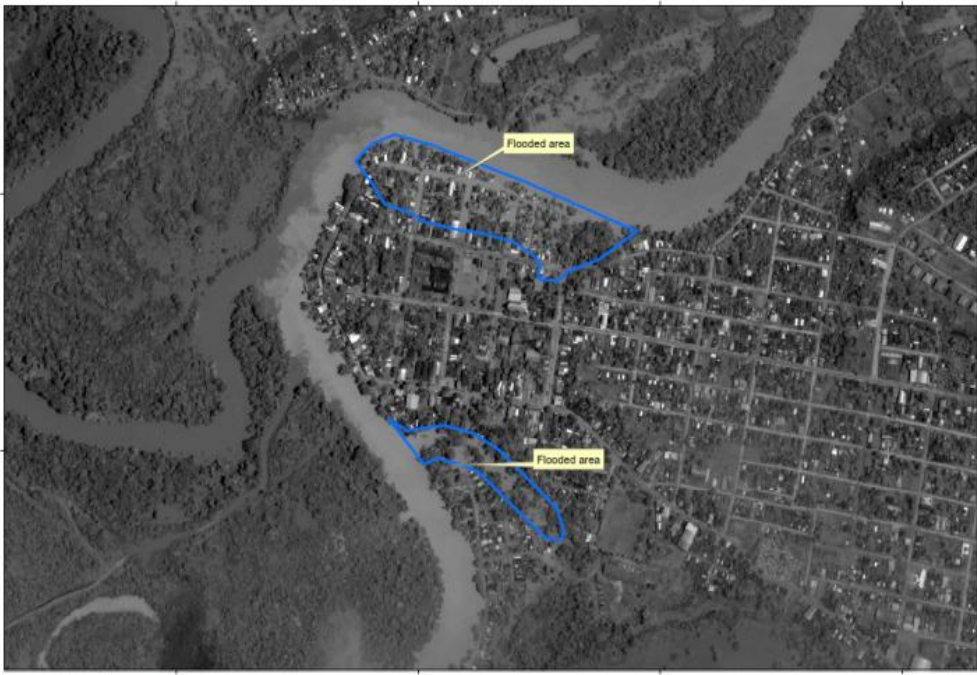
Charter Activation 520 Radar data provided by CSA, RadarSat-2 at March 6th, 2015.

In the images provided in the call 520, it was not possible to accurately determine the boundaries of the affected areas. In the analysis of the sensed terrain, large vegetation presence was detected in the affected areas, where trees tops distorted the sensing of the flooded areas.

In this case, contrary to CENAD expectations, the images that were most useful were optical. Even with partial cloud cover, it was possible to delimit the flooded areas. Even images that are usually rejected by space agencies have been useful in this case.

*E6. Provide a copy of the value-added products here. Please insert copies into this document as .jpeg or other small file formats:

BRAZIL - FLOOD - Xapuri/AC - March 01st, 2015



0 80 120 240 Metros
 1:5 000
 Product ID: generated by CENAD (Brazilian National Risk and Disaster Management Center), through the agreement International Charter "Space and Major Disasters" Charter Call ID 526, with images provided by ROSCOSMOS

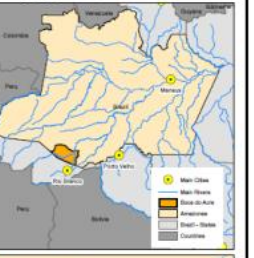
Legend
Resurs-P
Valor
 Atb: 255
 Data: 0

This product was generated using digital techniques and requires field verification. There is no precision mapping in this product

BRAZIL - FLOOD - Boca do Acre/AM - March 09th, 2015



- 1 - Estimated Affected Population - 11.160 people
Based on the flooding area observed at Pleiades image, compared with 2010 Brazilian Census Data sectors, provided by IBGE - Brazilian Institute of Geography and Statistics
- 2 - Reported Affected Population - 20.688 people
Source: Local Civil Defense
- 3 - Total local population - 30.632 people
Source: IBGE 2010



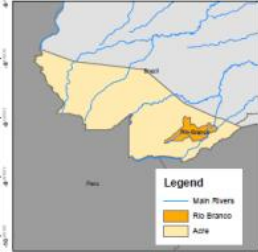
0 240 480 960 Metros
 1:20 000
 Product ID: generated by CENAD (Brazilian National Risk and Disaster Management Center), through the agreement International Charter "Space and Major Disasters" Charter Call ID 526, with images provided by CNES - Copyright: Pleiades © CNES 2015 Distribution: Airbus Defence and Space, all rights reserved.

Source: CNES / Pleiades
 Acquired: March 9th, 2015
 Acquisition mode: PX
 Composition: Bundle
 Resolution: 2m
 Product level: Ortho

Legend
 2010 Census Sectors
 Flooding Area

This product was generated using digital techniques and requires field verification. There is no precision mapping in this product

BRAZIL - FLOOD - Rio Branco/AC - March 02nd, 2015



0 237.5 475 950 Metros

1:20.000

Product ID: generated by CENAD (Brazilian National Risk and Disaster Management Center), through the agreement International Charter "Space and Major Disasters" Charter Call ID 520, with images provided by CNES - Copyright: Pleiades © CNES 2015. Distribution: Airbus Defence and Space, all rights reserved.

Source: CNES / Pleiades
Acquired: March 2nd, 2015
Acquisition mode: PX
Composition: Bundle
Resolution: 2m
Product level: Ortho

This product was generated using digital techniques and requires field verification. There is no precision mapping in this product

BRAZIL - FLOOD - Xapuri/AC - March 02nd, 2015

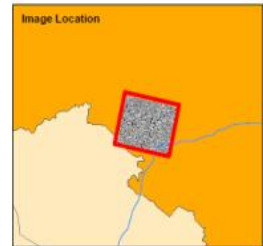
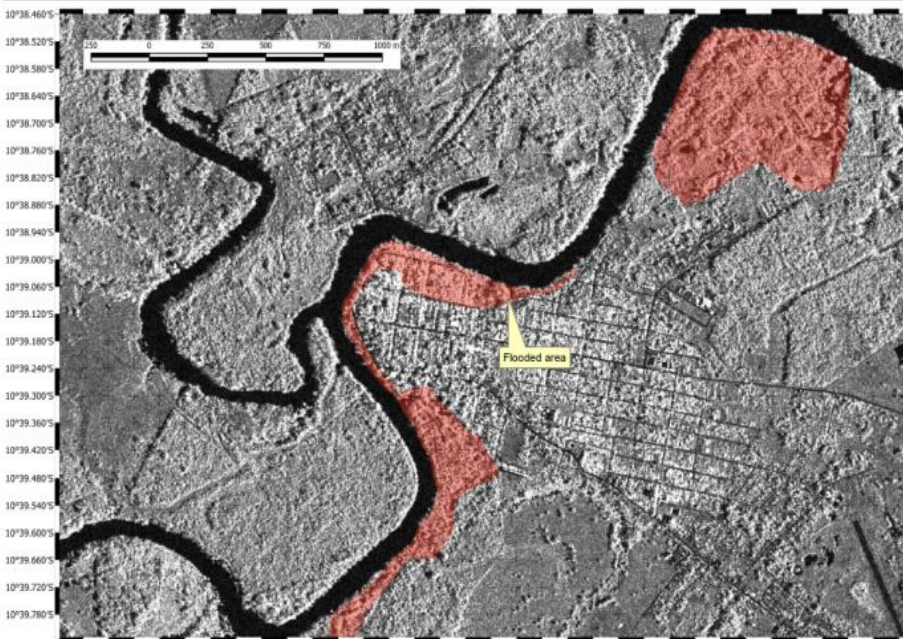


Image data:
Source: DLR/TerraSAR-X
Acquisition Mode: "SL"/"spot_678"/"HH"/"R"
Product Type: "EEC"/"RE"

Copyright: TerraSAR-X/Tandem-X © 2015 German Aerospace Center (DLR), 2015 Airbus Defence and Space / Infoterra GmbH

Product ID: generated by INPE (National Institute for Space Research) and CENAD (National Risk and Disaster Management Center), through the agreement International Charter "Space and Major Disasters" Charter Call ID 520, with images provided by DLR (German Aerospace Center).

This product was generated using digital techniques and requires field verification. There is no precision mapping in this product

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