

Cambodia • Lao PDR • Thailand • Viet Nam
For sustainable development



MRC – Flash Flood Guidance System (MRCFFGS)

MRC – Regional Flood Management and Mitigation Centre (RFMMC)



*Development and Implementation of
the South East Asia Flash Flood Guidance System (SEAFFGS)*

INITIAL PANNING MEETING

Ha Noi, Viet Nam

20-23 November 2017



USAID
FROM THE AMERICAN PEOPLE

Outline

1. General Information of MRCFFGS
2. Mandate and its roles
3. Products and delivery
4. Clients, users and feedbacks



General Information

1. The Mekong River Commission (MRC) and the US Agency for International Development (USAID) Office of US Foreign Disaster Assistance (OFDA) with the technical support from the Hydrologic Research Centre (HRC) through a program with the U.S. National Weather Service (U.S. NWS) have jointly implemented flash-flood mitigation program in Cambodia, Lao PDR, Thailand, and Vietnam.
2. The MRC Flash Flood Guidance (MRCFFG) system had been started to develop since 2005 and became operational in October 2009 at the Regional Flood Management and Mitigation Center (RFMMC), Phnom Penh, Cambodia.
3. The MRCFFGS is now part of the Flash Flood Guidance System with Global Coverage Project. A partnership between WMO, USAID/OFDA, HRC and NOAA.

Current MRCFFGS Forecaster Console

MRCFFG - Mekong River Commission Flash Flood Guidance System

Current Date: 2016-12-09 13:14 UTC Product Date: 2016-12-08 13:00 UTC

[Prev 6-hr Interval](#) [Reset to Current](#) [Next 6-hr Interval](#)
[-1 Year](#) [-1 Month](#) [-1 Day](#) [-6 Hours](#) [-1 Hour](#) [+1 Hour](#) [+6 Hours](#) [+1 Day](#) [+1 Month](#) [+1 Year](#)

Year: 2016 Month: 12 Day: 08 Hour: 13 REGION: REGIONAL [Submit](#)

Time-Scale	HE Satellite	Merged MAP	ASM	Previous FFG	FFG	PFPT
01-hr						
03-hr						
06-hr						
24-hr						

Composite Product Table: [TEXT](#), [CSV](#), [SST](#) SFTP data transfer (requires SFTP Client): [EXPORTS REGIONAL 2016-12-08](#)

Surfnet Gauge Precipitation Accumulations ending on 2016-12-08 13:00 UTC

Station Identifier	Observation Date & Time	6-hr Precip (mm/hr)	12-hr Precip (mm/12hr)	18-hr Precip (mm/18hr)	24-hr Precip (mm/24hr)
7/6 Date	7/6 Date	7/6 Date	7/6 Date	7/6 Date	7/6 Date

Baseline Threat Products

Time-Scale	01-hr	03-hr	06-hr
FFT			
FFG			
MAP			

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MRCFFG v1.1, Release Date November 2, 2012
 Copyright © 2012 Hydrologic Research Center (HRC)

Mandates and Roles

- The Mekong River Commission Regional Flood Management and Mitigation Centre (MRC-RFMMC), based in Phnom Penh, Cambodia, has the responsibility of being the Regional Centre for the MRCFFG system.
- The system was installed at the MRC RFMMC, with the system outputs being made available to forecasters (meteorologist and Hydrologist) in all four countries via the internet.
- In flood season, twice a day, the MRC analyses the MRCFFG output and provides critical system products for evaluating potential flash flood threats throughout the region on their website at <http://ffw.mrcmekong.org/mrcffgs.htm>.
- Every year, the gathering technical meeting is organized to purport MCs to improve the system and share lesson learn (sharing data, routine work on FFG).
- RFMMC is to make the performance of FFG system operation report.

MRCFFFG's Products

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This page was last updated on 24 July 2012 06:35

Some Products of the MRC Flash Flood Guidance System (MRCFFFG) On 24 July 2012 at 00:00 UTC (07:00 Local time)

Figure 1: 1 Hourly Flash Flood Guidance (FFG) on 24 July 2012 at 00:00 UTC (07:00 local time).
1-hourly FFG shows a number of high risk areas to flash flood occurrences at some districts of Lao Cai, Lai Chau, Son La, Kontum Provinces of Viet Nam. Also at some districts of Quang Mai, Quang Bia, Nam Phao, Mue Hong Song provinces of Thailand. And also at some villages of Luangprabang, Xayaboury, Bolikhamxay provinces of Lao PDR.
For more detail information on flash flood risk areas, please click on link below.

Figure 2: 3 Hourly Flash Flood Guidance (FFG) on 24 July 2012 at 00:00 UTC (07:00 local time).
3 hourly FFG shows a number of high risk areas to flash flood occurrences, and extending to other districts of the Siang, Lao Cai, Tuyen Quang, Lai Chau, Son La, Sao Song, Nghe An, Kontum, Gia Lai provinces of Viet Nam. Also Mue Hong Song, Phayao provinces of Thailand. And also extending to other villages of Phongsavan, Luangnamtha, Chudomay, Bokkeo, Luangprabang, Huayphong, Phongsavan, Xayaboury provinces of Lao PDR.
For more detail information on flash flood risk areas, please click on link below.

Figure 3: 6 Hourly Flash Flood Guidance (FFG) on 24 July 2012 at 00:00 UTC (07:00 local time).
6 hourly FFG also shows the same potential high risk areas as indicated by the 3 hourly FFG.

Figure 4: 6 Hourly Average Soil Moisture (ASM) condition (upper soil zone) up to 24 July 2012 at 00:00 UTC (07:00 local time).
ASM shows the soil moisture in some areas in central and northern parts of Viet Nam, in some areas in southern and northern parts of Lao PDR, in some areas in northern part of Thailand are saturated.

Figure 5: 24-hourly Mean Area Precipitation (MAP) from 01:00 UTC on 23 July to 00:00 UTC on 24 July 2012.
24 hourly MAP shows heavy rain was occurred at some areas in central highland and northern part of Viet Nam, at some areas in eastern part of Cambodia, also at some areas in central and northern parts of Lao PDR and also at some areas in northern part of Thailand.
Click this link to download detail information on flash flood risk areas in excel format

Figure 6: 1 Hourly Mean Area Precipitation (MAP) from 00:00 UTC to 01:00 UTC on 24 July 2012.
1 hourly MAP show rain was occurred at some areas in northern part of Viet Nam. And also at some areas in northern part of Thailand.

Note:
Mean Area Precipitation (MAP) is updated hourly
Average Soil Moisture (ASM) is updated every 6 hours
Flash Flood Guidance (FFG) is updated every 6 hours

Note: For any query please contact: floodforecast@mrcmekong.org

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<http://ffw.mrcmekong.org/mrcffgs.htm>

www.mrcmekong.org

Flood Forecasting

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About this site	Flash Flood Products	Weather Information	Historical Data / Reports	Links

Latest news

This page was last updated on 29 October 2017 08 : 30

Products of the MRC Flash Flood Guidance System (MRCFFGS)
On 29 October 2017 at 00:00 UTC (07:00 local time)

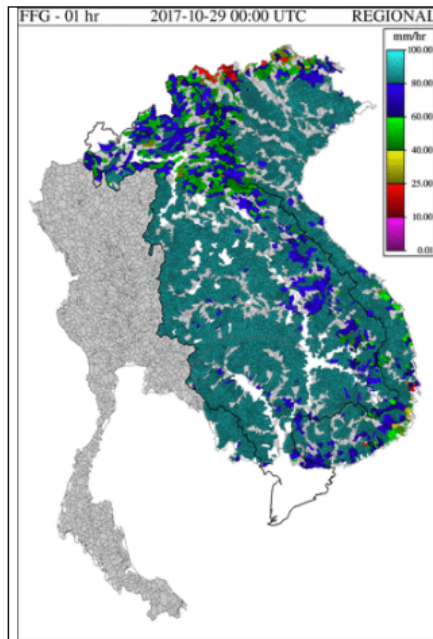


Figure 1: 01 hourly of Flash Flood Guidance (FFG) values on 27 October 2017 at 00:00 UTC (07:00 local time).

01 hourly show high-risk flash flood occurrences in Viet Nam. For more detail information on flash flood risk areas please click on link below.

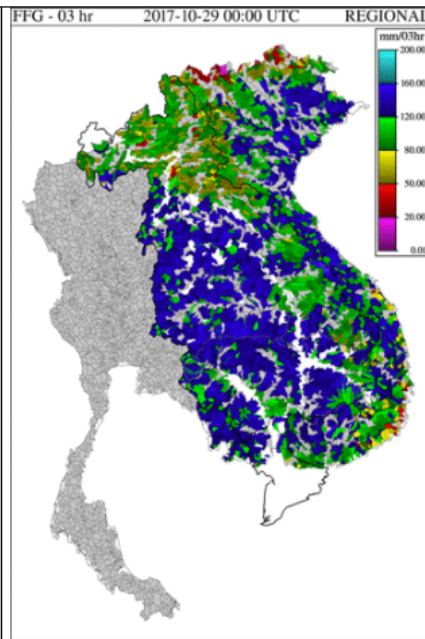


Figure 2: 03 hourly Flash Flood Guidance (FFG) on 27 October 2017 at 00:00 UTC (07:00 local time).

03 hourly show high-risk flash flood occurrences in Lao PDR and Viet Nam. For more detail information on flash flood risk areas please click on link below.

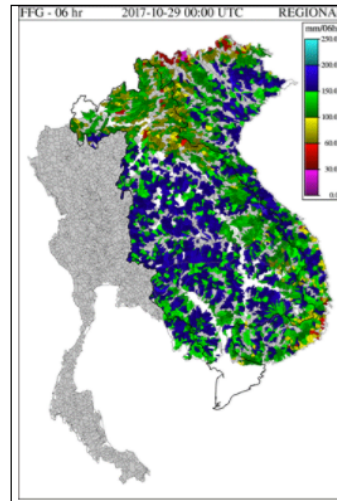
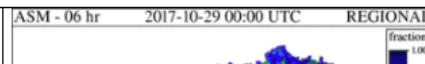
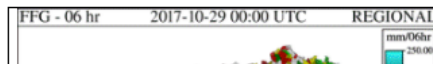


Figure 3: 06 hourly Flash Flood Guidance on 27 October 2017 at 00:00 UTC (07:00 local time).

06 hourly show high-risk flash flood occurrences in Lao PDR and Viet Nam. For more detail information on flash flood risk areas please click on link below.

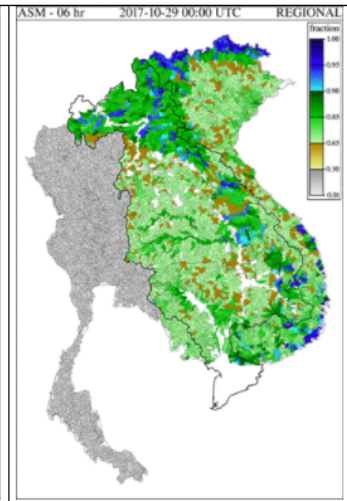


Figure 4: 06 hourly Average Soil Moisture (ASM) condition (upper soil zone) up to 29 October 2017 at 00:00 UTC (07:00 local time).

06 hourly ASM shows that the soil moistures at some areas of Mekong Basin.

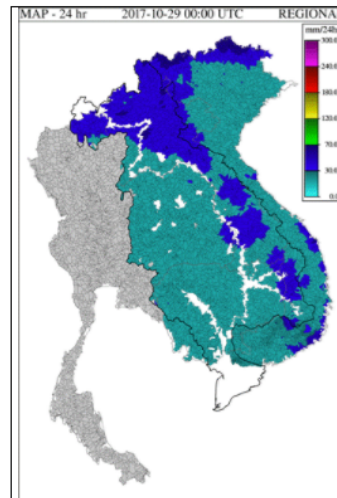


Figure 5: The last 24 hours of Mean Areal Precipitation (MAP) at 00:00 UTC (07:00 local time) on 29 October 2017.

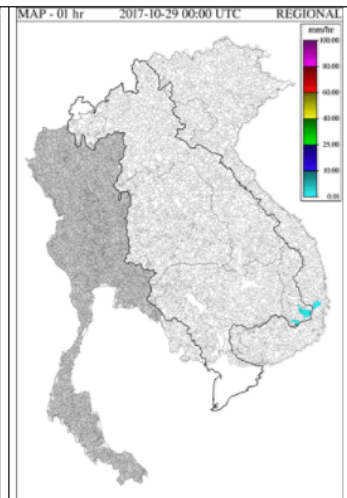


Figure 6: The last 01 hour of Mean Areal Precipitation (MAP) at 00:00 UTC (07:00 local time) on 29 October 2017.

<http://ffw.mrcmekong.org/mrcffgs.htm>

Flash flood risk areas in excel format



FFGVillages [Compatibility Mode] - Microsoft Excel

FILE HOME INSERT PAGE LAYOUT FORMULAS DATA REVIEW VIEW DEVELOPER

Clipboard Font Alignment Number Styles

Clipboard: Cut, Copy, Paste, Format Painter

Font: Arial, 10, Bold, Italic, Underline, Text Color, Background Color

Alignment: Wrap Text, Merge & Center

Number: General, Percentage, Currency, Date, Time, Text, Fraction, Scientific

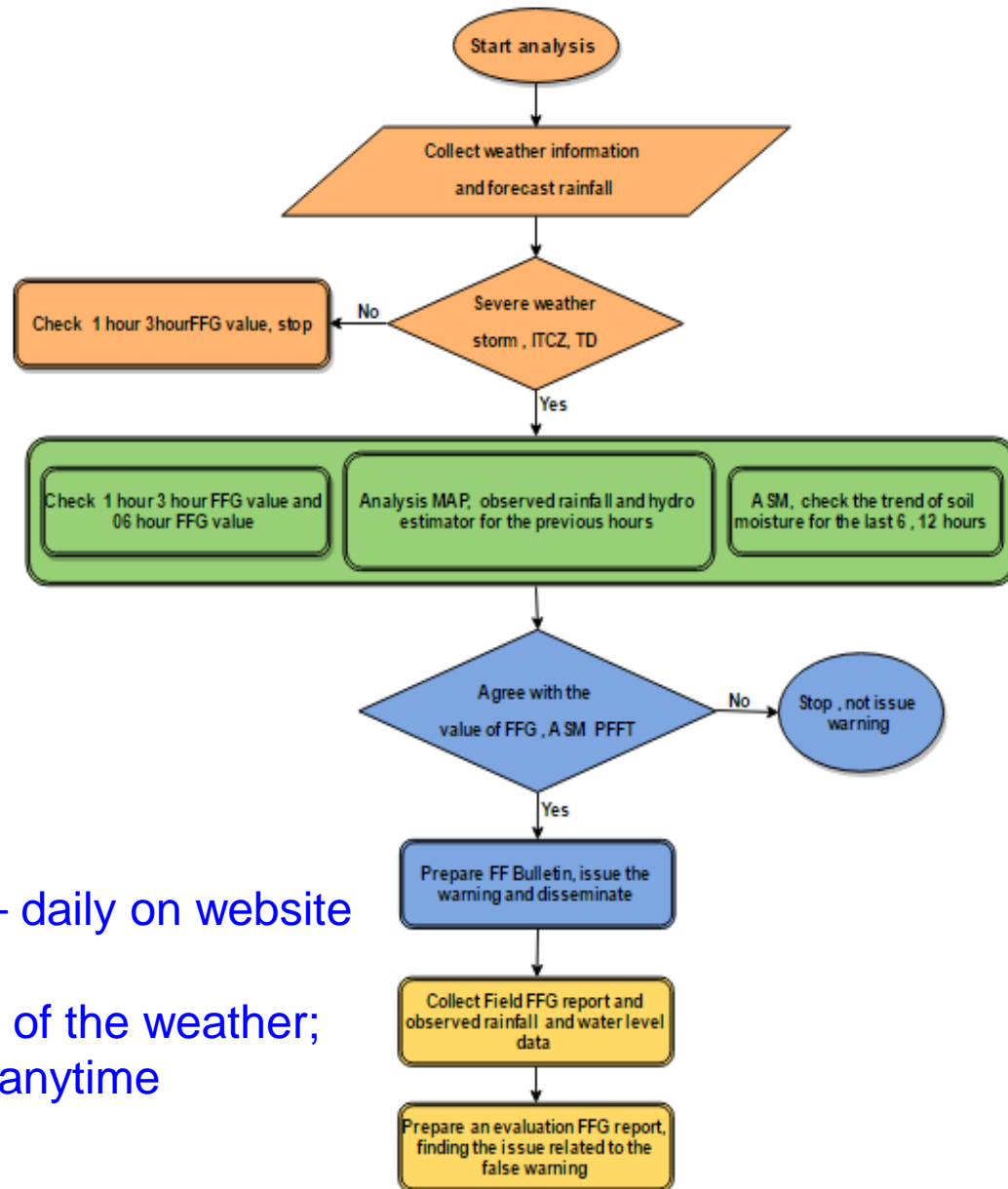
Styles: Normal, Bad, Check Cell, Explanatory...

Formula Bar: T15

A		B	C	D	E	F	G	H	I	J	K	L
1	Date of FFG products	29-10-2017 00:00 UTC time										
2	1hour Flash Flood Guidance in Vietnam			3hours Flash Flood Guidance in Vietnam				6hours Flash Flood Guidance in Vietnam				
3	Provinces	Districts	FFG value	Provinces	Districts	FFG Value	Provinces	Districts	FFG Value	Provinces	Districts	FFG Value
4	Khanh Hoa	Van Ninh	20.46	Quang Nam	Que Son	32.58	Quang Nam	Que Son	39.45	Quang Nam	Que Son	39.45
5	Khanh Hoa	Ninh Hoa	21.19	Phu Yen	Tuy Hoa	36.61	Phu Yen	Tuy Hoa	43.79	Phu Yen	Tuy Hoa	43.79
6	Binh Thuan	Ham Thuan Nam	23.82	Khanh Hoa	Van Ninh	27.23	Khanh Hoa	Van Ninh	34.21	Khanh Hoa	Van Ninh	34.21
7	Dak Lak	Dak Nong	13.59	Khanh Hoa	Ninh Hoa	27.72	Khanh Hoa	Ninh Hoa	34.75	Khanh Hoa	Ninh Hoa	34.75
8	Cao Bang	Hoa An	21.2	Khanh Hoa	Ninh Hoa	49.45	Khanh Hoa	Khanh Son	51.91	Khanh Hoa	Khanh Son	51.91
9	Lao Cai	Bat Xat	13.79	Khanh Hoa	Khanh Son	42.25	Khanh Hoa	Cam Ranh	56.65	Khanh Hoa	Cam Ranh	56.65
10	Lao Cai	Bat Xat	15.11	Khanh Hoa	Cam Ranh	46.42	Ninh Thuan	Ninh Son	50.74	Ninh Thuan	Ninh Son	50.74
11	Lao Cai	Bat Xat	23.62	Ninh Thuan	Ninh Son	41.38	Ninh Thuan	Ninh Hai	42.38	Ninh Thuan	Ninh Hai	42.38
12	Lai Chau	Phong Tho	24.94	Ninh Thuan	Ninh Hai	33.47	Binh Thuan	Tuy Phong	52.36	Binh Thuan	Tuy Phong	52.36
13	Lai Chau	Sin Ho	24.71	Binh Thuan	Tuy Phong	42.92	Ninh Thuan	Ninh Phuoc	43.38	Ninh Thuan	Ninh Phuoc	43.38
14	Lai Chau	Phong Tho	18.93	Ninh Thuan	Ninh Phuoc	34.18	Binh Thuan	Tuy Phong	47.08	Binh Thuan	Tuy Phong	47.08
15	Lai Chau	Phong Tho	22.44	Binh Thuan	Tuy Phong	37.78	Binh Thuan	Ham Thuan Nam	47.25	Binh Thuan	Ham Thuan Nam	47.25
16	Lao Cai	Bat Xat	14.15	Binh Thuan	Ham Thuan Nam	37.93	Binh Phuoc	Bu Dang	58.37	Binh Phuoc	Bu Dang	58.37
17	Lai Chau	Phong Tho	16.7	Binh Phuoc	Bu Dang	49.85	Lam Dong	Bao Lam	38.89	Lam Dong	Bao Lam	38.89
18	Lai Chau	Muong Lay	23.48	Lam Dong	Bao Lam	32.25	Binh Thuan	Ham Thuan Nam	39.23	Binh Thuan	Ham Thuan Nam	39.23
19	Lai Chau	Muong Te	23.17	Binh Thuan	Ham Thuan Nam	31.48	Dak Lak	Dak Nong	25.11	Dak Lak	Dak Nong	25.11
20	Lai Chau	Muong Te	24.95	Dak Lak	Dak Nong	19.07	Cao Bang	Hoa An	35.56	Cao Bang	Hoa An	35.56
21	Lai Chau	Muong Te	24.26	Cao Bang	Hoa An	28.25	Cao Bang	Nguyen Binh	51.35	Cao Bang	Nguyen Binh	51.35
22	Lai Chau	Sin Ho	23.72	Cao Bang	Nguyen Binh	42.96	Lao Cai	Bat Xat	22.82	Lao Cai	Bat Xat	22.82
23	Ha Giang	Xin Man	21.36	Lao Cai	Bat Xat	18.16	Lao Cai	Bat Xat	24.96	Lao Cai	Bat Xat	24.96
24	Ha Giang	Bac Me	24.49	Lao Cai	Bat Xat	19.79	Lao Cai	Bat Xat	34.54	Lao Cai	Bat Xat	34.54
25				Lao Cai	Bat Xat	28.83	Lao Cai	Bao Thang	51.41	Lao Cai	Bao Thang	51.41
26				Lao Cai	Bao Thang	41.73	Lai Chau	Phong Tho	36.14	Lai Chau	Phong Tho	36.14
27				Lai Chau	Phong Tho	30.3	Lao Cai	Than Uyen	37.04	Lao Cai	Than Uyen	37.04
28				Lao Cai	Than Uyen	31.04	Lai Chau	Sin Ho	42.41	Lai Chau	Sin Ho	42.41
29				Lai Chau	Sin Ho	34.32	Lai Chau	Sin Ho	46.19	Lai Chau	Sin Ho	46.19
30				Lai Chau	Sin Ho	37.15	Lai Chau	Sin Ho	46.15	Lai Chau	Sin Ho	46.15
31				Lai Chau	Sin Ho	37.18	Lai Chau	Sin Ho	39.66	Lai Chau	Sin Ho	39.66
32				Lai Chau	Sin Ho	31.71	Lai Chau	Phong Tho	31.84	Lai Chau	Phong Tho	31.84
33				Lai Chau	Phong Tho	25.29	Lai Chau	Phong Tho	36.1	Lai Chau	Phong Tho	36.1
34				Lai Chau	Phong Tho	28.88	Lao Cai	Bat Xat	23.45	Lao Cai	Bat Xat	23.45
35				Lao Cai	Bat Xat	18.61	Lai Chau	Phong Tho	27.29	Lai Chau	Phong Tho	27.29
36				Lai Chau	Phong Tho	21.84	Lai Chau	Muong Lay	37.78	Lai Chau	Muong Lay	37.78
37				Lai Chau	Muong Lay	30.19	Lai Chau	Muong Te	37.35	Lai Chau	Muong Te	37.35
38				Lai Chau	Muong Te	29.81	Lai Chau	Muong Te	40.36	Lai Chau	Muong Te	40.36
39				Lai Chau	Muong Te	32.38	Lai Chau	Muong Te	39.87	Lai Chau	Muong Te	39.87
40				Lai Chau	Muong Te	31.99	Lai Chau	Muong Te	41.67	Lai Chau	Muong Te	41.67
41				Lai Chau	Muong Te	33.71	Lai Chau	Muong Te	38.48	Lai Chau	Muong Te	38.48
42				Lai Chau	Muong Te	31.04	Lai Chau	Sin Ho	37.93	Lai Chau	Sin Ho	37.93
43				Lai Chau	Sin Ho	30.4	Lai Chau	Muong Te	40.15	Lai Chau	Muong Te	40.15
44				Lai Chau	Muong Te	32.32	Lai Chau	Muong Te	43.66	Lai Chau	Muong Te	43.66
45				Lai Chau	Muong Te	35.1	Ha Giang	Xin Man	34.71	Ha Giang	Xin Man	34.71
46				Ha Giang	Xin Man	27.62	Bac Kan	Ba Be	44.17	Bac Kan	Ba Be	44.17

Introduction FFGVNAM FFGTHAI FFGLAO FFGCAM Explanation





Work Flow of Daily Operation of MRCFFGS



- Every published twice – daily on website and bulletins
- In case critical situation of the weather; monitor and upload for anytime

Timeframe for processing daily operation of MRCFFGS



Color indicated in the work flow	Time frame for the process the work	Work activities
	<p>From 7:00 to 7:30 for morning operation</p> <p>From 13:00 to 13:30</p> <p>For afternoon operation</p>	<p>Collect weather information from web site : www.tmd.go.th; www.tropicalstormrisk.com; www. Sharaku.erorc.jaxa.jp/GSMap/ and forecast rainfall from NOAA, and do analysis weather situation.</p>
	<p>From 7:30 to 8:10 for morning operation</p> <p>From 13:30 to 14:10 for afternoon operation.</p>	<p>Process 1;3;6 hour FFG according to the guideline for processing FFG system.</p> <p>Calculate the accumulated rainfall for the observed (surface) rainfall which are available in hydmet database, and compare with the accumulated MAP and accumulated hydroestimator.</p>
	<p>From 8:10 to 8:30 for morning operation.</p> <p>From 14:10 to 14:30 for afternoon operation</p>	<p>Prepare the Flash flood warning text in word format and also table of the warning districts or villages in excel format, send it to the IT staff of RFMMC to upload to web site.</p>
	<p>Within week after the issue the FF warning.</p> <p>The evaluation report should</p>	<p>Contact to the national line agencies or the national FFG operator to request the flash flood information or also collect flash flood information</p>



Daily Operation of The MRC

1hour Flash Flood Guidance in Vietnam			3hours Flash Flood Guidance in Vietnam		
Provinces	Districts	FFG value	Provinces	Districts	FFG Value
Lao Cai	Bat Xat	17.30	Ha Giang	Yen Minh	45.47
Lao Cai	Sa Pa	17.81	Ha Giang	Bac Me	45.47
Lao Cai	Than Uyen	18.01	Ha Giang	Hoang Su Phi	42.32
Lai Chau	Phong Tho	17.65	Ha Giang	Vi Xuyen	43.36
			Ha Giang	Xin Man	39.98
			Ha Giang	Bac Quang	42.89
			Cao Bang	Bao Lac	45.47
			Lao Cai	TX. Lao Cai	36.53
			Lao Cai	Muong Khuong	46.44
			Lao Cai	Bat Xat	25.83
			Lao Cai	Bac Ha	41.34
			Lao Cai	Bao Thang	46.44
			Lao Cai	Sa Pa	26.50
			Lao Cai	Bao Yen	43.24
			Lao Cai	Than Uyen	23.60
			Lai Chau	Muong Te	42.33
			Lai Chau	Phong Tho	28.24
			Lai Chau	Sin Ho	41.12
			Lai Chau	Muong Lay	42.61

- List of location of flash flood risk areas with villages, districts and provinces name (Flash flood warning list)

1hour Flash Flood Guidance in Lao				3hour Flash Flood Guidance in Lao			
Provinces	Districts	Villages	FFG Value	Provinces	Districts	Villages	FFG Value
Phongsaly	Phongsaly	LAOTHE NE	20.88	Phongsaly	Phongsaly	LAOTHE NE	28.75
Phongsaly	Phongsaly	LAO SE	20.88	Phongsaly	Phongsaly	LAO SE	28.75
Phongsaly	Phongsaly	TASENPHONG	20.88	Phongsaly	Phongsaly	TASENPHONG	28.75
Phongsaly	Nhot ou	TAKOUXANG	21.73	Phongsaly	May	HOUAYSONG T	39.41
Phongsaly	Nhot ou	PACHE OLIN	21.73	Phongsaly	May	HOUAYSONG N	39.41
Phongsaly	Nhot ou	PE ULAOXOU K.	21.73	Phongsaly	May	HOUAYV/K NEU	39.41
Phongsaly	Nhot ou	LAO PHOU CHA	21.73	Phongsaly	May	HOUAYV/K TAI	39.41
Phongsaly	Nhot ou	PE ULAOXOU M	21.73	Phongsaly	May	NAMNGA	39.41
Vientiane	Vangvieng	NAMON TAI	24.87	Phongsaly	May	NAMKHAM	39.41
Vientiane	Vangvieng	NAMON NEUA	24.87	Phongsaly	May	OM KANIENG	39.41
Vientiane	Vangvieng	PHONE SAWAN	24.87	Phongsaly	May	HOUAYVANGSC	39.41
Vientiane	Vangvieng	VANGHE UA	24.87	Phongsaly	May	HOUAY OUN	39.41
Vientiane	Vangvieng	PHONEKE O	24.87	Phongsaly	May	PONGHY	39.41
Vientiane	Vangvieng	NA OM	24.87	Phongsaly	May	TINTOK	39.41
Vientiane	Vangvieng	NANGEUN NEU	24.87	Phongsaly	May	OM PALONG	39.41
Vientiane	Vangvieng	PHONEYANG	24.87	Phongsaly	May	PONGHY	39.41
Vientiane	Vangvieng	NANGEUN TAI	24.87	Phongsaly	May	TANLOTONG	39.41
Vientiane	Vangvieng	NAMPAT NEUA	24.87	Phongsaly	May	HOUAYVANGKA	39.41
Xaysomboun Spe	Longxan	NAMYING	23.94	Phongsaly	May	NANGUN	39.41
Xaysomboun Spe	Longxan	XENGM	23.94	Phongsaly	May	POUNGKHAO	39.41
Xaysomboun Spe	Longxan	NAPHO	23.94	Phongsaly	May	VANG KAO	39.41
Xaysomboun Spe	Longxan	VANGLUANG	23.94	Phongsaly	May	OM TALEUM	39.41
Xaysomboun Spe	Hom	VIENGKEO	11.31	Phongsaly	Nhot ou	TAKOUXANG	29.68
				Phongsaly	Nhot ou	XEOLDXOU	45.45
				Phongsaly	Nhot ou	PHINCHANG KA	45.45
				Phongsaly	Nhot ou	PHINCHANG KA	45.45
				Phongsaly	Nhot ou	PACHE OLIN	29.68
				Phongsaly	Nhot ou	KOUNGCHI	45.45
				Phongsaly	Nhot ou	PE ULAOXOU KA	29.68
				Phongsaly	Nhot ou	LAO PHOU CHA	29.68
				Phongsaly	Nhot ou	PE ULAOXOU M	29.68
				Luangnamtha	Viengphou	NAMTIENG	45.78
				Luangnamtha	Viengphou	TONGMANG	46.24
				Luangnamtha	Viengphou	LAIYANG	45.78
				Luangnamtha	Nalae	LA ANG	46.24
				Luangnamtha	Nalae	TAKHEUNG	46.24
				Luangnamtha	Nalae	KAYE	45.78
				Luangnamtha	Nalae	KHANEUNG	45.78
				Luangnamtha	Nalae	SALEUANG	45.78
				Luangnamtha	Nalae	MONGKHO	45.78
				Luangnamtha	Nalae	SAKRANG	45.78
				Luangnamtha	Nalae	NEUNGPHET	45.78
				Bokeo	Pha Oudo	BONGLAOSOU	46.24
				Bokeo	Pha Oudo	HANGDOI	46.24
				Bokeo	Pha Oudo	SAMIN	46.24

Flash Flood in Xayaboury (Lao PDR) 23 July 2016

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Flash flooding hits farmers in Xayaboury

Times Reporters

Almost 200 families in Boten district, Xayaboury province, have lost some or all of their crops to flash flooding after heavy rains last weekend but luckily no deaths or injuries were reported.

Boten District Governor Mr Bounsene Chanthaphong told *Vientiane Times* yesterday that on the evening of July 23, heavy rains caused widespread flooding in low-lying areas.

Some 174 families have been affected to varying degrees, mostly in Nakha, Boten, Donsavang, Taokoua and Nhai villages.

The flooded area includes 60 hectares of rice fields, 56 fish farms and some houses.

Mr Bounsene said it was the first recorded instance of flash flooding in the district.

District authorities are preparing a report for the Xayaboury provincial authorities so they can take steps to help the worst affected villagers.

This year, farming families in many parts of the country have been hit by flash flooding and have lost crops as a result.

From July 10-14, over 300 hectares of farmland in six villages of Bonkhan district, Borikhamxay province, were also partially underwater.

Some 900 families in communities along the Nam Xan river have been affected to varying degrees, mostly in Vatthath, Nahae, Sisavath, Hadpho, Phonkham and Pakheuang villages.

The flooded area includes 262 hectares of rice fields and 65 hectares of cassava crops.

A one-kilometre stretch



Over 60 hectares of rice fields in Boten district, Xayaboury province, were affected by flash flooding last weekend.

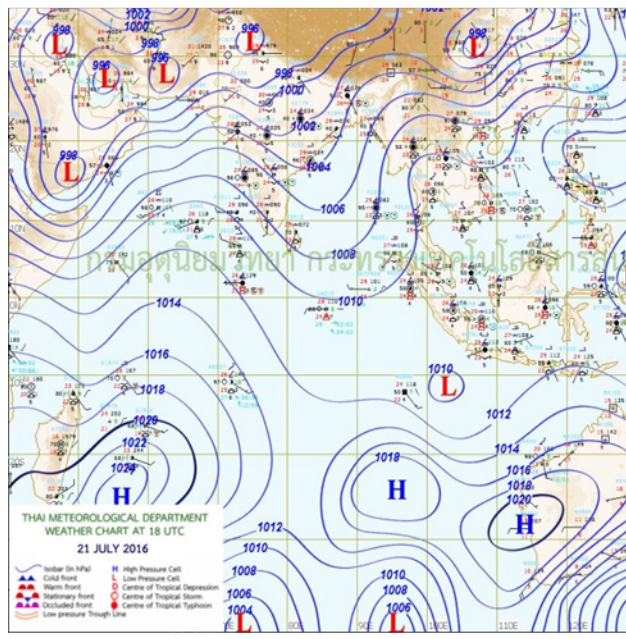
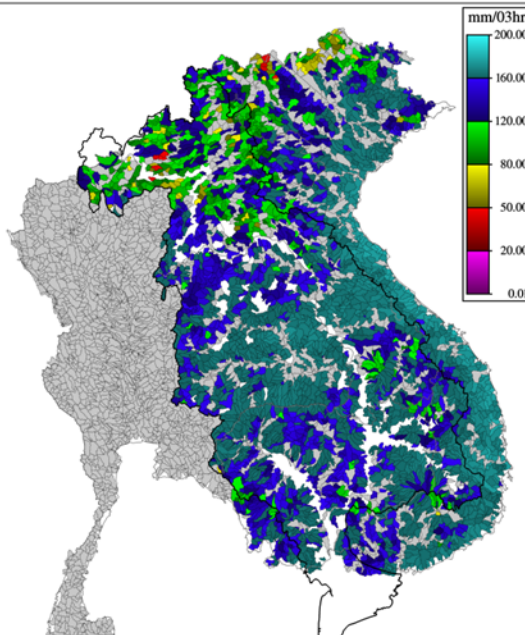
of road running between Hadonkhoum and Phonkham villages; and 500 metres of road in the centre of Bonkhan district were also under water.

Also in Pakxan district, Borikhamxay province, over 1,000 people were cut off from neighbouring towns and districts after a road flooded there recently, with two villages having to resort to transport by boat. According to district authorities, Thabor and Songkhone villages were under water and flooding had occurred along a 300-metre stretch of the road.

more than 1,000 people are struggling to get in and out of their villages and are using boats to get around.

These areas are vulnerable to flooding because they are low-lying and flooding has occurred here in the past. Pakxan district authorities are planning to upgrade the road to protect it from flooding in the future. According to the Xinhua news agency, some 8.6 million people were affected by floods and landslides caused by heavy rain in China last week. Officials said that at least 154 people have been killed while another 124 are missing.

FFG - 03 hr 2016-07-22 00:00 UTC REGIONAL

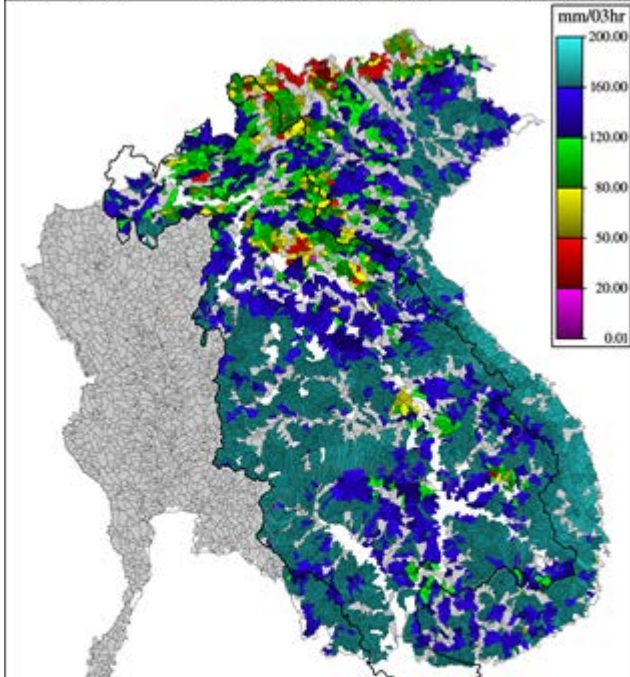


Date of FFG produ		22/07/2016 00:00		UTC time			
1hour Flash Flood Guidance in Lao				3hour Flash Flood Guidance in Lao			
Provinces	Districts	Villages	FFG Value	Provinces	Districts	Villages	FFG Value
No Risk Areas				Bokeo	Pha Oudo	KANG	44.96
				Bokeo	Pha Oudo	MOKPORN	44.96
				Bokeo	Pha Oudo	MOKSOUK	44.96
				Bokeo	Pha Oudo	MOKKHA KANG	44.96
				Bokeo	Pha Oudo	SIBOUNHEUAN	44.96
				Bokeo	Pha Oudo	PHA OU DOM	44.96
				Bokeo	Pha Oudo	THINKEO NEUA	44.96
				Xayaboury	Xienghon	MOK SA KIEN	45.09
				Xayaboury	Xienghon	HONG KHOU	45.09
				Xayaboury	Xienghon	KEW KENE	45.09
				Xayaboury	Xienghon	NGEW	45.09
				Xayaboury	Xienghon	NAM BENG	45.09
				Xayaboury	Xienghon	LAO OU	45.09
				Xayaboury	Xienghon	LAO SA NO	45.09

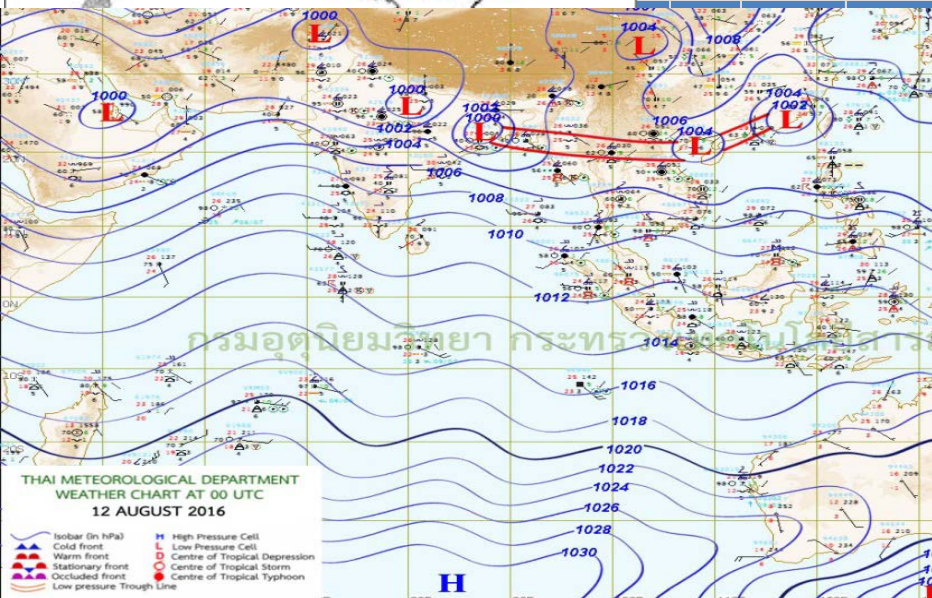
Flash Flood in Bokeo of Lao PDR ITCZ (13 Aug 2016)



FFG - 03 hr 2016-08-12 00:00 UTC REGIONAL



1hour Flash Flood Guidance in Lao			3hour Flash Flood Guidance in Lao			
Districts	Villages	FFG Value	Provinces	Districts	Villages	FFG
Phongsaly	LAOTHENE	20.88	Phongsaly	Phongsaly	LAOTHENE	
Phongsaly	LAOSE	20.88	Phongsaly	Phongsaly	LAOSE	
Phongsaly	TASENPHONG	20.88	Phongsaly	Phongsaly	TASENPHONG	
Nhot ou	TAKOUXANG	21.73	Phongsaly	May	HOUAYSONG T	
Nhot ou	PACHEOLIN	21.73	Phongsaly	May	HOUAYSONG N	
Nhot ou	PEULAOXOU K	21.73	Phongsaly	May	HOUAYVIK NEU	
Nhot ou	LAO PHOU CHA	21.73	Phongsaly	May	HOUAYVIK TAI	
Nhot ou	PEULAOXOU M	21.73	Phongsaly	May	NAMNGA	
Vangvieng	NAMON TAI	24.87	Phongsaly	May	NAMKHAM	
Vangvieng	NAMON NEUA	24.87	Phongsaly	May	OMKANENG	
Vangvieng	PHONESAWAN	24.87	Phongsaly	May	HOUAYVANGS	
Vangvieng	VANGHEUA	24.87	Phongsaly	May	HOUAY OUN	
Vangvieng	PHONEKEO	24.87	Phongsaly	May	PONGHY	
Vangvieng	NA OM	24.87	Phongsaly	May	TINTOK	
Vangvieng	NANGEUN NEU	24.87	Phongsaly	May	OMPALONG	
Vangvieng	PHONEYANG	24.87	Phongsaly	May	PONGHY	
Vangvieng	NAMPAT TAI	24.87	Phongsaly	May	TANLOTONG	
Vangvieng	NAMPAT NEUA	24.87	Phongsaly	May	HOUAYVANGK	
h Spé Longxan	NAMYING	23.94	Phongsaly	May	NANGEUN	
h Spé Longxan	XIENGI	23.94	Phongsaly	May	POUNGKHAO	
h Spé Longxan	NAPHO	23.94	Phongsaly	May	VANG KAO	
h Spé Longxan	VANGLUANG	23.94	Phongsaly	May	OMTALEUM	
h Spé Hom	VIENGKEO	11.31	Phongsaly	Nhot ou	TAKOUXANG	
			Phongsaly	Nhot ou	XEOLIXOU	
			Phongsaly	Nhot ou	PHINCHANG KA	
			Phongsaly	Nhot ou	PHINCHANG KA	
			Phongsaly	Nhot ou	PACHEOLIN	
			Phongsaly	Nhot ou	KOUNGCHI	
			Phongsaly	Nhot ou	PEULAOXOU K	
			Phongsaly	Nhot ou	LAO PHOU CHA	
			Phongsaly	Nhot ou	PEULAOXOU M	
			Luangnamtha	Viengphou	NAMTIENG	
			Luangnamtha	Viengphou	TONGMANG	
			Luangnamtha	Viengphou	LAIYANG	
			Luangnamtha	Nalae	LA ANG	
			Luangnamtha	Nalae	TAKHEUNG	
			Luangnamtha	Nalae	KAYE	
			Luangnamtha	Nalae	KHANEUNG	
			Luangnamtha	Nalae	SALEUANG	
			Luangnamtha	Nalae	MONGKHO	
			Luangnamtha	Nalae	SAKRANG	
			Luangnamtha	Nalae	NEUNGPHET	
			Bokeo	Pha Oudo	BONGLAOSOUN	
			Bokeo	Pha Oudo	HANGDOI	
			Bokeo	Pha Oudo	SAMIN	



TUESDAY AUGUST 16, 2016 ISSUE 189

Landslides follow heavy rains in nation's north

Khonecavanh Latsaphao

Bokeo province road workers are struggling to repair sections of a provincial link between the districts of Paktha and Huayxai after vehicles were left stranded on Sunday evening by landslides.

A 3.8km section of the Paktha to Huayxai road has been cut at four points due to landslides. Soil slid down onto the road in two locations while it has collapsed in another two places.

An official from the province Public Works and Transport Department Mr Somboun Keuthkong told *Vientiane Times* on Monday that two sections of the road collapsed adjacent to the

on Sunday due to heavy rain that lashed the province since Friday last week.

Many motorists and tourists can use an alternative road through Xay district and another via Pakbong district in Oudomxay province to link to the town of Huayxai district in Bokeo province. The routes via Pakbong district in Oudomxay province cannot be used to connect with Huayxai district as it is cut off in Paktha district of the Bokeo province.

Workers started their repairs on Monday but were finding it difficult because of the weather.

"Right now it is not easy for workers on the road because it is still raining. If there is no more rain the road may be reopened again on Tuesday evening," he said.

Mr Somboun explained that two sections of the road collapsed adjacent to the flooded Tha River due to the torrential rain in parts of the northern provinces.

Road users and tourists can use an alternative road through Xay district and another via Pakbong district in Oudomxay province to link to the town of Huayxai district in Bokeo province. The routes via Pakbong district in Oudomxay province cannot be used to connect with Huayxai district as it is cut off in Paktha district of the Bokeo province.

An official from Oudomxay province Mrs Khonecavanh Xayatham said on Monday afternoon a section of National Road 2W at Vanglam Bridge in Houm district located between Xay and Pakbong districts that was flooded on Friday morning has seen vehicles starting to cross on Monday after water receded.

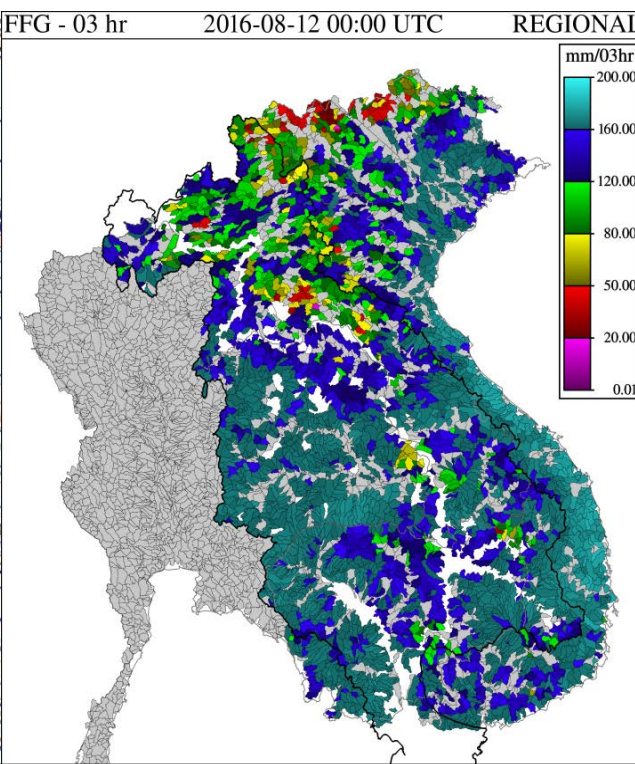
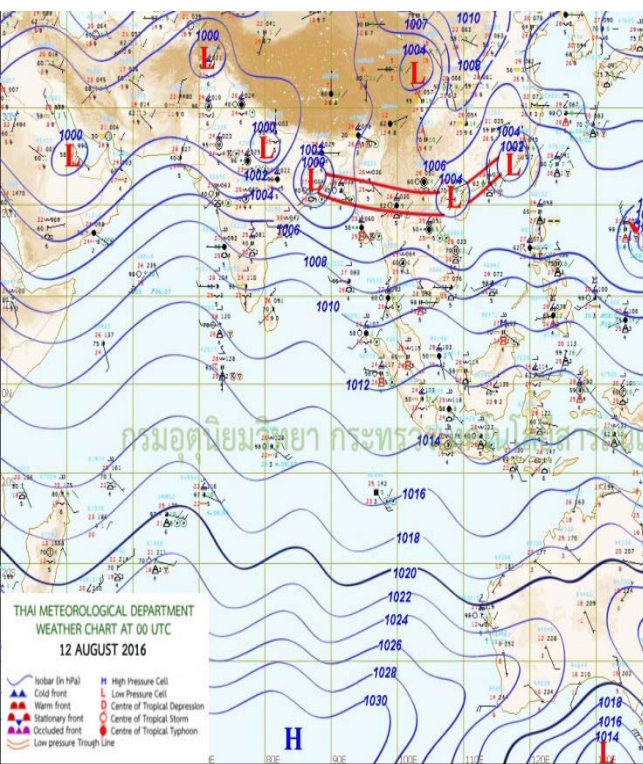
She added there had been no more rain and even sunshine again in Houm district on Monday morning. However, some streets in the town of Oudomxay province's Xay district remained flooded following some more rain in the afternoon, but it started to recede by 3:30 pm that day after the rain stopped.

About 170 houses in four villages of Hongsa district in Xayaboury province were also flooded due to heavy rain on Friday.



A section of the collapsed road linking Paktha to Huayxai districts in Bokeo province.

Flash flood in Lao Cai of Viet Nam ITCZ (13Aug 2016)



Deaths, damage in torrential northern rains



Muong Lat district in central Thanh Hoa Province was isolated by floods yesterday. Downpours and flooding have wreaked havoc in northern and northcentral regions over the past few days, killing at least four people. — VNA/VNS Photo

Date of FFG products			12/08/2016 00:00 UTC time		
1hour Flash Flood Guidance in Vietnam			3hours Flash Flood Guidance in Vietnam		
Provinces	Districts	FFG value	Provinces	Districts	FFG Value
Lao Cai	Bat Xat	17.30	Ha Giang	Yen Minh	45.47
Lao Cai	Sa Pa	17.81	Ha Giang	Bac Me	45.47
Lao Cai	Than Uyen	18.01	Ha Giang	Hoang Su Phi	42.32
Lai Chau	Phong Tho	17.65	Ha Giang	Vi Xuyen	43.36
			Ha Giang	Xin Man	39.98
			Ha Giang	Bac Quang	42.89
			Cao Bang	Bao Lac	45.47
			Lao Cai	TX. Lao Cai	36.53
			Lao Cai	Muong Khuong	46.44
			Lao Cai	Bat Xat	25.83
			Lao Cai	Bac Ha	41.34
			Lao Cai	Bao Thang	46.44
			Lao Cai	Sa Pa	26.50
			Lao Cai	Bao Yen	43.24
			Lao Cai	Than Uyen	23.60
			Lai Chau	Muong Te	42.33
			Lai Chau	Phong Tho	28.24
			Lai Chau	Sin Ho	41.12
			Lai Chau	Muong Lay	42.61

HÀ NỘI — At least four people died, one is missing and three were injured after torrential rains swept through the northern and north-central regions over the past few days, according to the latest report from the Central Steering Committee on Natural Disaster Prevention and Control.

The district was inaccessible to transportation at several sections of National Road 15C connecting this mountainous district with other localities were eroded. More than 30 hectares of rice and other crops were damaged.

In the central province of Thanh Hoa, 200mm of rainfall and subsequent flooding was recorded in Muong Lat District yesterday, killing one person and washing away four houses, Cao Văn Cường, Chairman of the district People's Committee said.

The northern mountainous province of Lao Cai on Saturday reported one dead and one missing after torrential rain hit the locality.

The northern mountainous province of Binh Binh reported two deaths, including two children who were swept away by downpour-triggered floods on Friday.

As complex rain developments are forecast, local authorities have evacuated 10 families from flood-prone areas and readied plans to minimize flood impact and assist people.

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Feedbacks

- Requested RFMMC to modify its current products (bulletins) on the MRC public web portal.
- Improve information's warning of the FFG to village layer for region areas (Viet Nam, Thailand)
- Required a better and international practice to verify the products of MRCFFGS.
- Recommended RFMMC to collaborate with national disaster management and mitigation agencies for result verification.

Cambodia • Lao PDR • Thailand • Viet Nam
For sustainable development



Thank you for your kind attentions!

Regional Flood Management and Mitigation Centre (RFMMC)
Mekong River Commission (MRC) Secretariat

