



USAID
FROM THE AMERICAN PEOPLE



Establishment of Regional Flash Flood Guidance Systems for South America

a planning meeting in Lima, Peru
16-18 August, 2016

Eylon Shamir, Ph.D,
EShamir@hrcwater.org

Hydrologic Research Center



Hydrologic Research Center [HRC] San Diego, California U.S.



- The Hydrologic Research Center is a public benefit nonprofit organization.
- HRC's goal is to help bridge the gap between scientific research and applications for the solution of important societal problems that involve water.

Global Flash Flood Guidance Program

- The implementation of Flash Flood Guidance systems globally is a program to provide a tool for National Meteorological and Hydrologic Services to develop flash flood alerts, watches and warnings.
- The program addresses the need to provide early warnings for flash floods in the development of regional approaches to flash flood issues.
- The program is a partnership between the Hydrologic Research Center, the World Meteorological Organization, the U.S. Agency for International Development/Office of U.S. Foreign Disaster Assistance, and the U.S. National Oceanic and Atmospheric Administration.

Memorandum Of Understanding is in place since 2008.



HYDROLOGIC RESEARCH
CENTER

A Nonprofit Research Corporation



Global Flash Flood Guidance

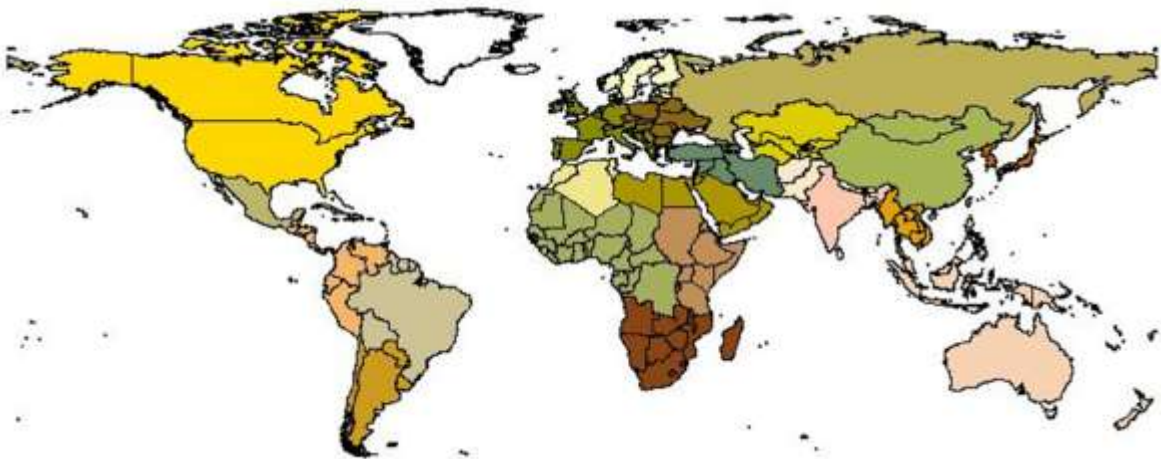


Flash Flood Guidance System (FFGS) With Global Coverage

System Implementation Plan



22 Regions



The Role of the Hydrologic Research Center

- Developed the FFGS concept and system design
- Tailor the FFG systems for the specific of the region (data, geomorphology and hydrometeorology)
- Implement the systems at the selected regional center and provide technical support
- Train forecasters to use the FFGS and in order to produce prompt flash flood warnings.
- Maintain and enhance the FFG Systems



Tailor the FFG systems for the specific of the region

Product Console

BSMEFFG - Black Sea Middle East Flash Flood Guidance System

Current Date: 2016-06-21 23:04 UTC Nav Date: 2016-03-28 23:00 UTC

Year: 2016 Month: 03 Day: 28 Hour: 23 REGION: REGIONAL Submit

-1 Month -1 Day -6 Hours -1 Hour +1 Hour +6 Hours +1 Day +1 Month

Prev 6-hr Interval (18 UTC) Reset to Current Next 6-hr Interval (00 UTC)

Product Table (indicated by red arrow)

Navigation (indicated by red arrow)

DT	RADAR Precipitation	MWGHE Precipitation	GHE Precipitation	Gauge MAP	Merged MAP	ASM	FFG	IFFT	PEFT	ALADIN Forecast	FMAP	FFFT
01-hr												
03-hr												
06-hr												
24-hr												

Diagnostic (indicated by dashed blue line)

Prognostic (indicated by dashed blue line)

Text Downloads (indicated by red arrow)

Composite Product: [text](#) [CSV](#) [CSV1](#)

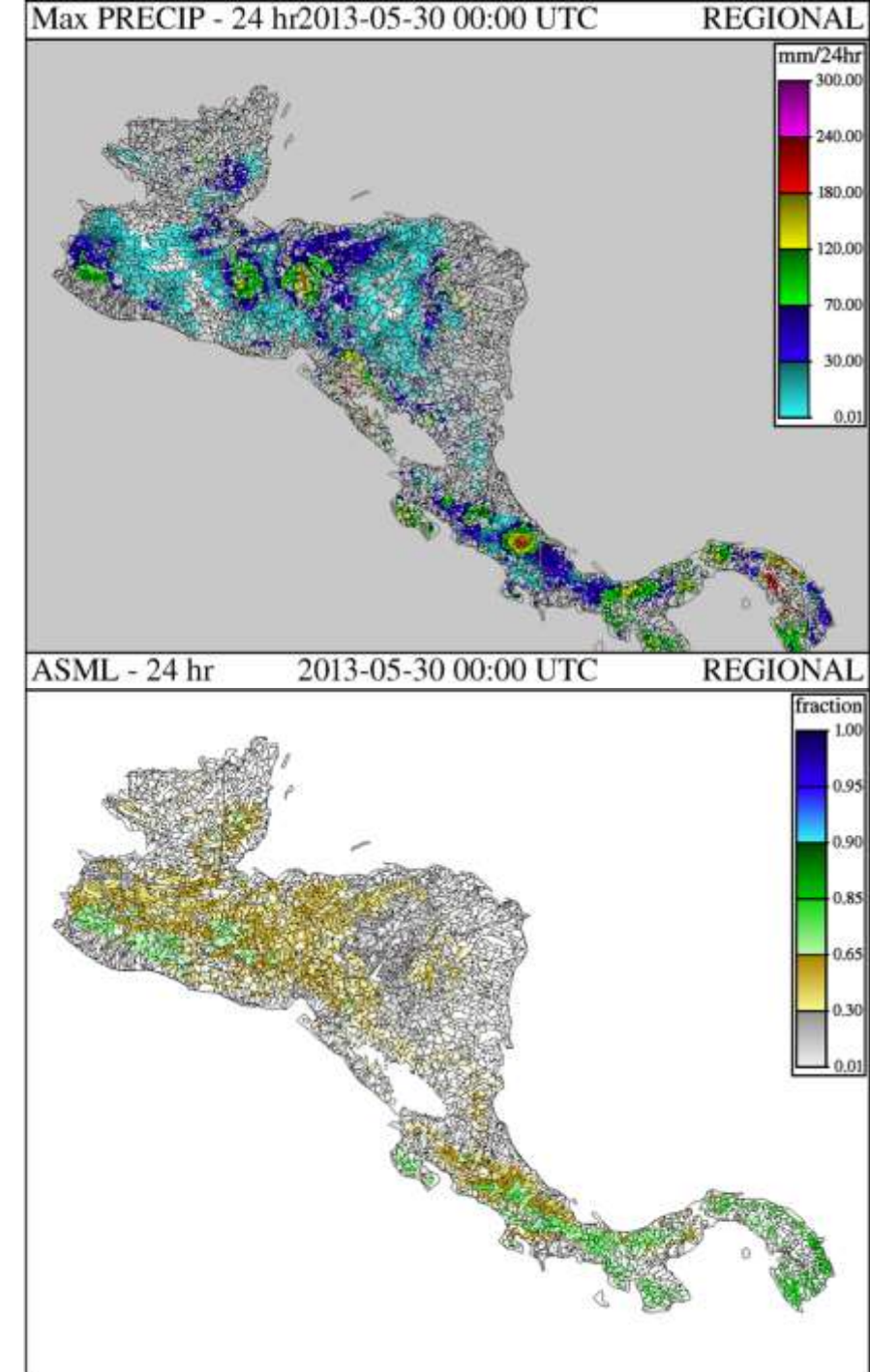
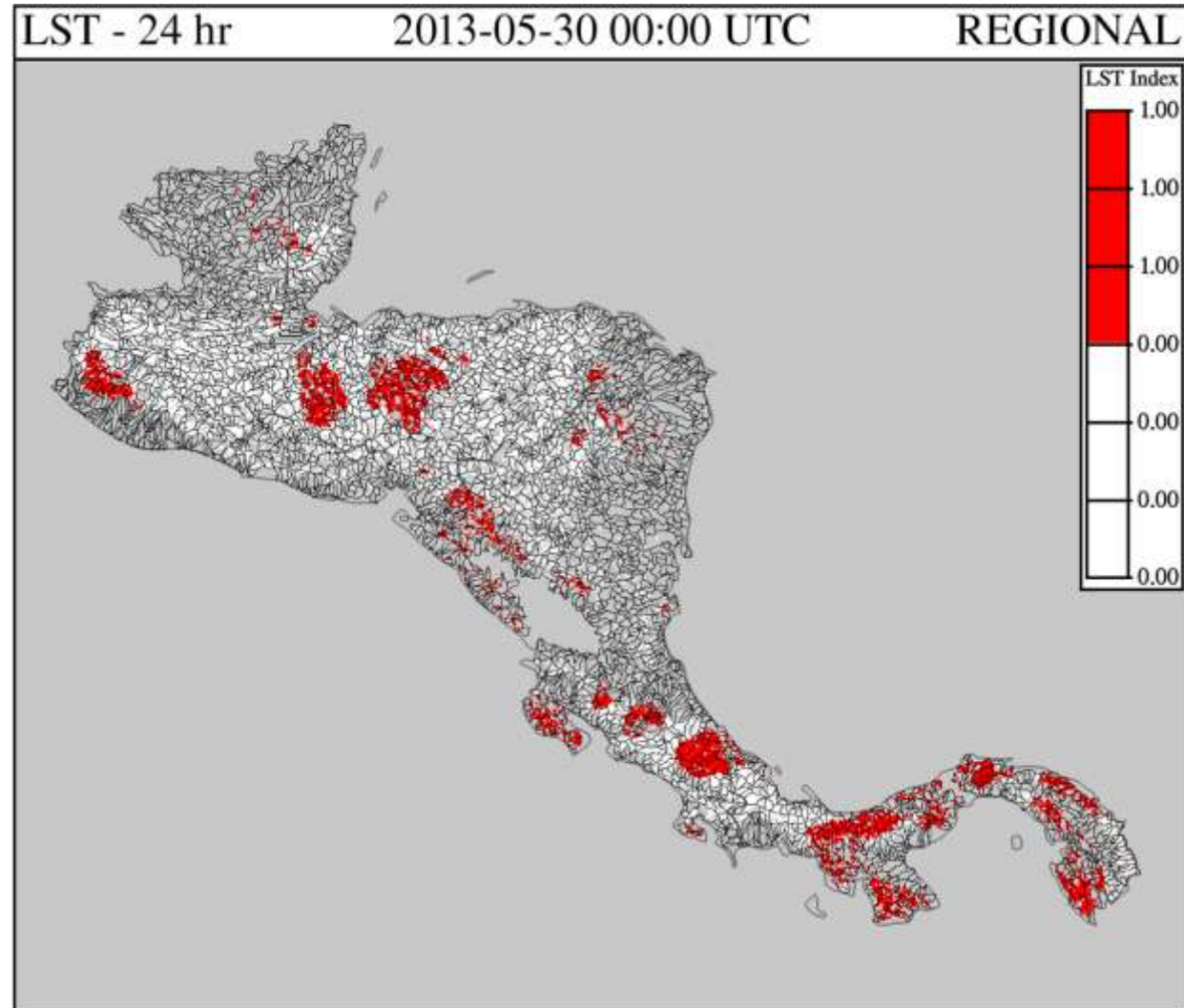
Surfnet Gauge Observations at 2016-03-28 18:00 UTC

SFTP data transfer (requires SFTP Client): [SFTP://REGIONAL.MDIA/03/16](#)

Station Identifier	Station Name	Accumulated Precipitation (mm SftP)	Average Temperature (C)	Stare Depth (mm)	Stare Cover (Index)	Station	Longitude	Latitude	Elevation	Enable Precipitation Flag	Enable Temperature Flag
31001	Yedigöller	0.00	13.80	No Report	No Report	BS111801A	41.9941	33.8323	31	Enabled	Enabled
31002	Lomah	0.00	12.00	No Report	No Report	BS111801A	41.1401	34.7586	220	Enabled	Enabled
31003	Muguzel	0.00	9.90	No Report	No Report	BS111801A	43.5461	26.8078	340	Enabled	Enabled
31004	Yaruz	0.00	7.72	No Report	No Report	BS111801A	43.2129	27.8322	89	Enabled	Enabled
31005	Straguz	0.00	7.80	No Report	No Report	BS111801A	42.8161	23.6661	1067	Enabled	Enabled
31006	Sefuz	0.00	11.30	No Report	No Report	BS111801A	42.4253	23.2447	280	Enabled	Enabled
31007	Yuzuz	0.00	-8.92	No Report	No Report	BS111801A	42.1797	22.8940	2923	Enabled	Enabled

System Enhancement

Upcoming FFGS new product: Land Slide Threat [LST]





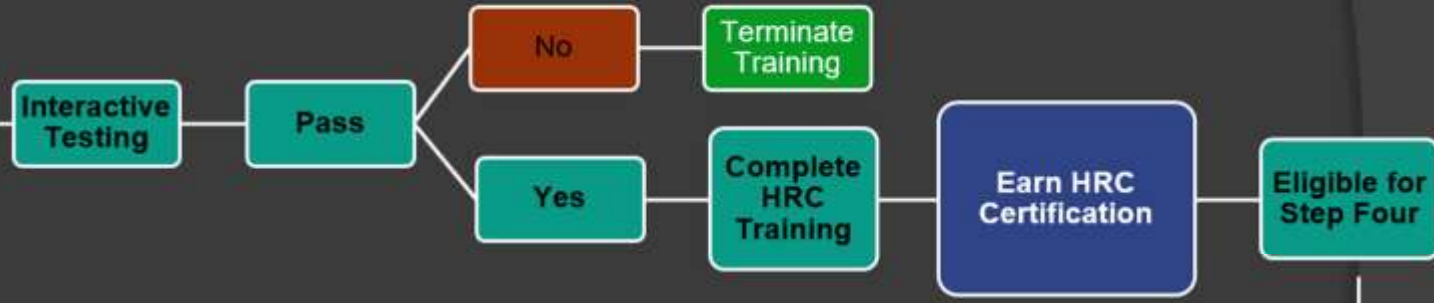
Step 1
Introductory Regional Workshop
(All Trainees, All Countries)

Flash Flood Hydrometeorologist Training Program

Step 2
eLearning Hydrometeorologist Training Program
All Trainees
All Countries



Step 3
Specialized training at HRC
(Simulator Training)



Step 4
Regional Operations Training Workshop
Regional Country Trainers

HRC Trainers and Trained Regional Trainers

Earn WMO Certification

Step 5
Regional Operations Sustainability Workshop
(WMO Certified Trainers)

Flash Flood Hydrometeorologist Training (FFHT) Program

HYDROLOGIC RESEARCH CENTER

A NON-PROFIT RESEARCH AND TECHNOLOGY TRANSFER CORPORATION, ESTABLISHED IN 1993

USERNAME

PASSWORD

Login

Forgot your username
or password?

REGISTER
NEW USER

VISIT THE
HRC WEBSITE

Eight courses

Elements of Meteorology,
Elements of Hydrology,
Hydrometeorological Statistics,
Fluvial geomorphology,
GIS basics,
Flash Flood Guidance Model Products,
Remote sensing and
Early warning systems.



VIEW COURSES

Filter Courses

Any Course

MEKONG RIVER COMMISSION MODULE

Forum

+ Add

Edit

Delete

Courses

Course Material

Examination

Actions

Mekong River Commission Flash Flood Guidance Products Module

Add | View

Add

Edit

Delete

ELEMENTS OF METEOROLOGY

Forum

+ Add

Edit

Delete

Courses

Course Material

Examination

Actions

Overview

Add | View

Add

Edit

Delete

FLASH FLOOD GUIDANCE PRODUCTS

Forum

+ Add

Edit

Delete

Courses

Course Material

Examination

Actions

FORUM TEST

Forum

+ Add

Edit

Delete

Courses

Course Material

Examination

Actions

ELEMENTS OF HYDROLOGY

Forum

+ Add

Edit

Delete

Over 400 people on the distribution list mostly from national meteorological and hydrological services

FLASH FLOOD GUIDANCE GAZETTE

Flash Flood Guidance systems around the World



Since 1993 the Hydrologic Research Center (HRC) has led the technical development and application of flash flood guidance systems in thirty different countries.

In collaboration with the national meteorological and hydrological services, HRC Flash Flood Guidance systems will serve more than half a billion people worldwide by the end of 2011.

Map of countries using flash flood guidance systems designed and implemented or under implementation by HRC.

The South Africa Regional Flash Flood Guidance System

The South Africa Regional Flash Flood Guidance (SARFFG) system will be the first fully automated real-time regional flash flood guidance system in the Southern Africa region, in operation in seven countries - South Africa, Botswana, Namibia, Malawi, Mozambique, Zambia and Zimbabwe in 2011.

The SARFFG system is a diagnostic tool for analyzing weather-related events that can initiate flash floods and is designed to allow the forecaster to add his/her experience with local conditions, incorporate information and any last-minute local observations, to assess the threat of a local flash flood.



Haiti and Hurricane Tomas



Map illustrating the track of Tomas (October 30 to November 7, 2010). Source: U.S. National Weather Service/National Hurricane Center.

On 4th and 5th of November 2010, Haiti was impacted by Hurricane Tomas, with heavy rains and winds over various areas of the country.

Tomas developed from a tropical wave east of the Windward Islands on 29th October and quickly intensified into a hurricane passing near Santa Lucia on 31st October.

During its closest passage to Haiti, Tomas was a Category I Hurricane per the U.S. National Weather Service, National Hurricane Center. See the following discussion to learn how the FFG system was used in Haiti.

For more information on the HDRFFG system see - http://www.hrc-lab.org/right_nav_widgets/realtime_hdrffg/index.php

- ▶ Disaster Risk Reduction Education ... 2
- ▶ Flash Flood Hydrometeorological Training (FFHT) Program ... 2
- ▶ Informed Children: For Better Disaster Preparedness ... 3
- ▶ Philippines: Disaster risk reduction in school continues its journey ... 4 - 5
- ▶ From a System of Models to a Program: The Flash Flood Guidance Program ... 6

ISSUE 2 | VOLUME 4 | 2014

Hydrologic Research Center
www.hrcwater.org

Flash Flood Guidance Gazette

Flash Flood Guidance (FFG) Gazette, a bi-annual newsletter bringing users of FFG products all the latest news - operational information, technical advances, case studies and a new e-learning environment for the flash flood community.

Special Issue: Disaster Risk Reduction

The International Day for Disaster Reduction (13th October, 2014) is a day to celebrate how people and communities are reducing their risk to disasters and raising awareness about the importance of Disaster Risk Reduction (DRR). For flash floods and floods community experience can provide the local knowledge and gender perspectives necessary for successful flash flood risk management strategies. Through DRR education it can also provide an understanding of the types, causes, and impacts of flash floods; flash flood hazards, and vulnerability to communities.

A community's DRR education can be the key to development and critical to broad-based economic growth, mitigation of the effects of fragility and conflict, and promoting country security. This is particularly true for areas heavily impacted by natural disasters such as droughts, floods, flash floods and earthquakes. As the sudden and emerging threats from natural disasters challenge individuals, families, communities and countries, educating affected populations becomes not only vital, but a requirement in the rebuilding process.

DRR education is not only a foundation of human development, in emergency situations; it provides physical and psychosocial protection, which can be both life-saving and life-sustaining. It is through education we can develop positive attitudes and responses, which are vital to confront crises, provide a channel for conveying survival messages, and promote personal development and preparedness for responsible citizenry.

Pakistan, Thailand, Haiti and the Philippines have been particularly hard hit in the past few years and the development of DRR programs that support literacy,

numeracy and life skills training provide a logical focal point to aid in rebuilding communities. The development of DRR education programs for communities is a systematic approach to identifying, assessing and mitigating the hazards associated with extreme natural hazards. If we focus on floods and flash floods, in particular, an education program aimed at understanding the important characteristics of the physical processes associated with these natural disasters (such as short lead times) and with the potential impacts (such as the ability of as little as two feet of flowing water to carry away cars) allows the learner to pose and answer certain fundamental questions pertaining to the learners own situation. This practical approach where the learners understand their role and are given an opportunity to participate is one way to create an atmosphere of awareness with individuals, families and communities. It is by the knowledge the learner gains from understanding these and other natural disasters and their impact that can reduce the risk, empower the citizenry and advance approaches to mitigation and adaptive management strategies.

The following articles provide examples of educational programs that involve individuals, families and communities.

Contributor
Rochelle Graham
Hydrologic Research Center

Global FFG Development Team at HRC

Dr. Konstantine Georgakakos, Director

Mr. Robert Jubach, General Manager

Mr. Jason Sperfslage

Dr. Theresa Modrick

Dr. Eylon Shamir

Mr. Cris Spencer

Mr. Randall Banks

Dr. Rochelle Graham





THANK YOU