

Zarumilla River Basin FFGS Demonstration

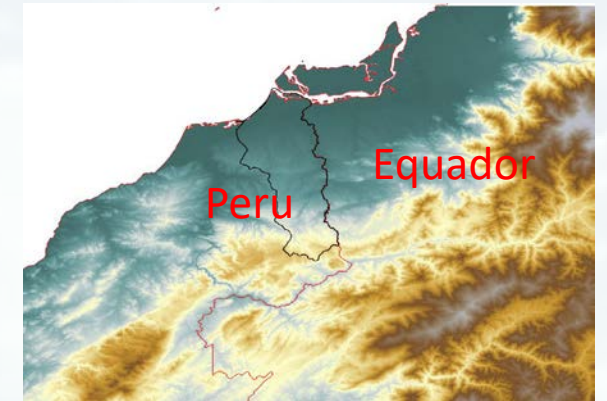
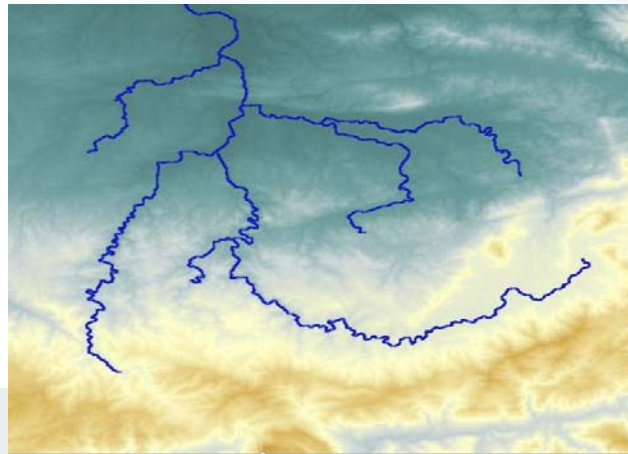
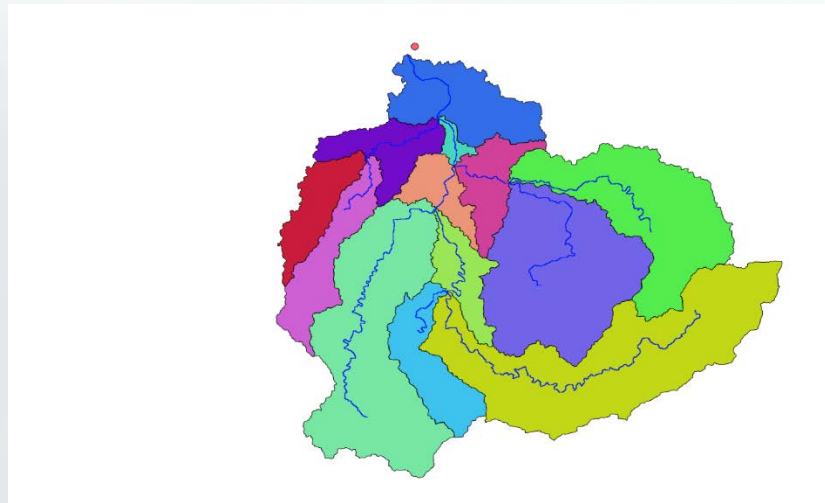
HYDROLOGIC RESEARCH CENTER

20 February 2018

Email: KGeorgakakos@hrcwater.org

Transboundary Zarumilla River Basin

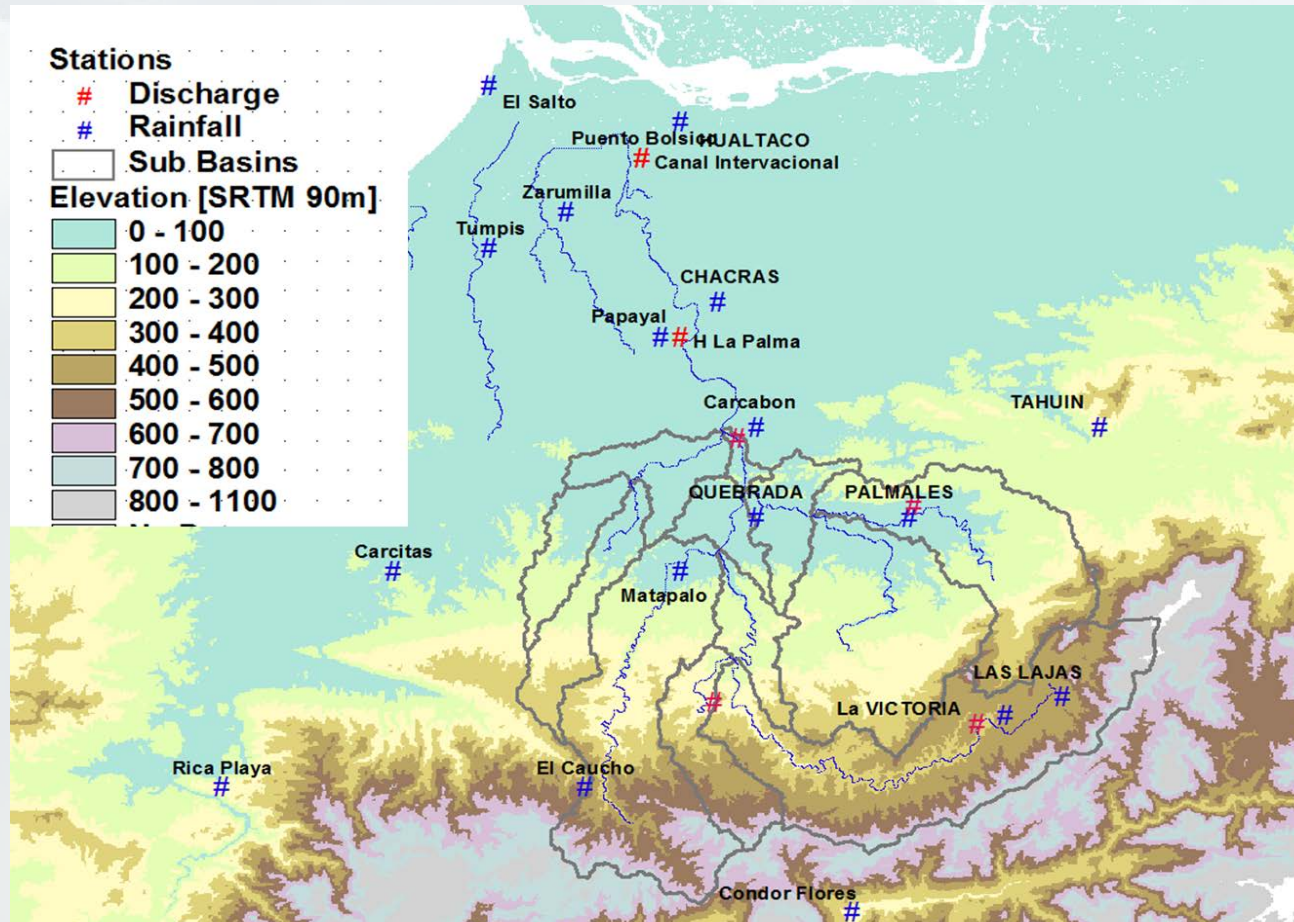
SUB-BASIN DELINEATION – SRTM DEM QC 90M



ADJUSTMENTS BASED ON COUNTRY FEEDBACK

DELINEATED BASIN SIZE IS 30-50KM²

Available Meteorological and Hydrological Stations

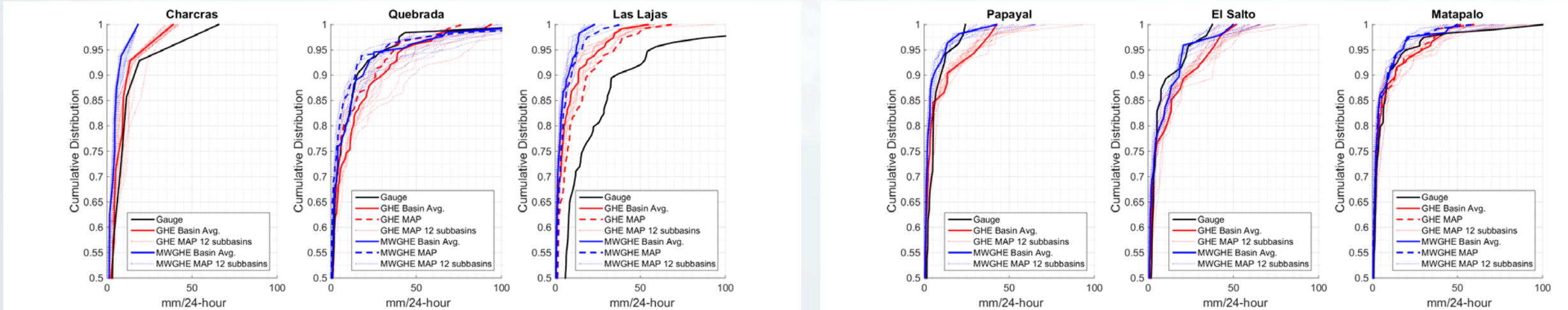


Satellite Precipitation Bias Adjustment Factors from Historical Raingauge Data – GHE and MWGHE

(Limited Data Record for Demonstration JAN-MAY 2012-2015)

Ecuador

Peru



GHE Sample Factors By Decile of Cumulative Precipitation Observations:

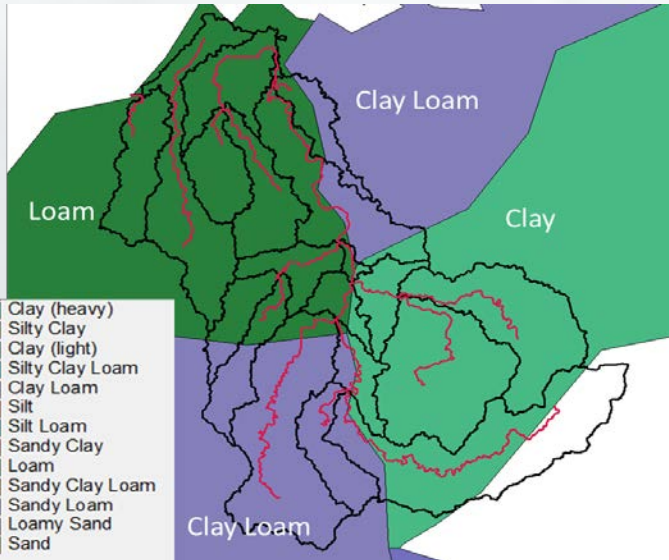
$$B = AV[R_{gauge}] / AV[R_{ghe}]$$

Observed Gauge Rainfall:	6.5mm/day	B=1.85
	12.5	1.40
	25.0	0.80

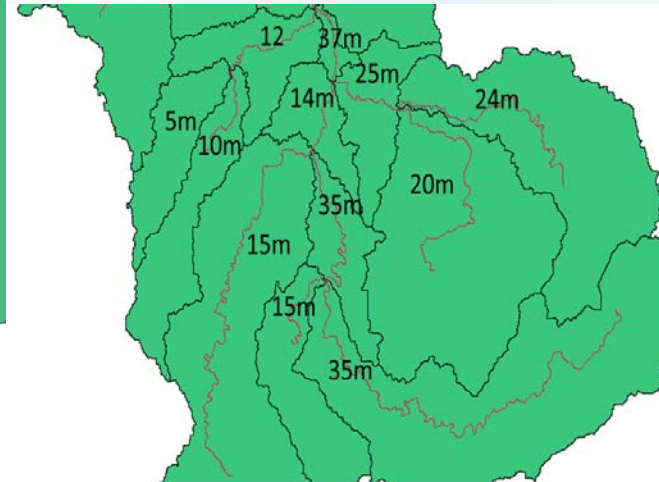
For Demonstration:
Single Factor for GHE 1.37
Single Factor for MWGHE 1.9

Land Surface Model Parameter Estimation

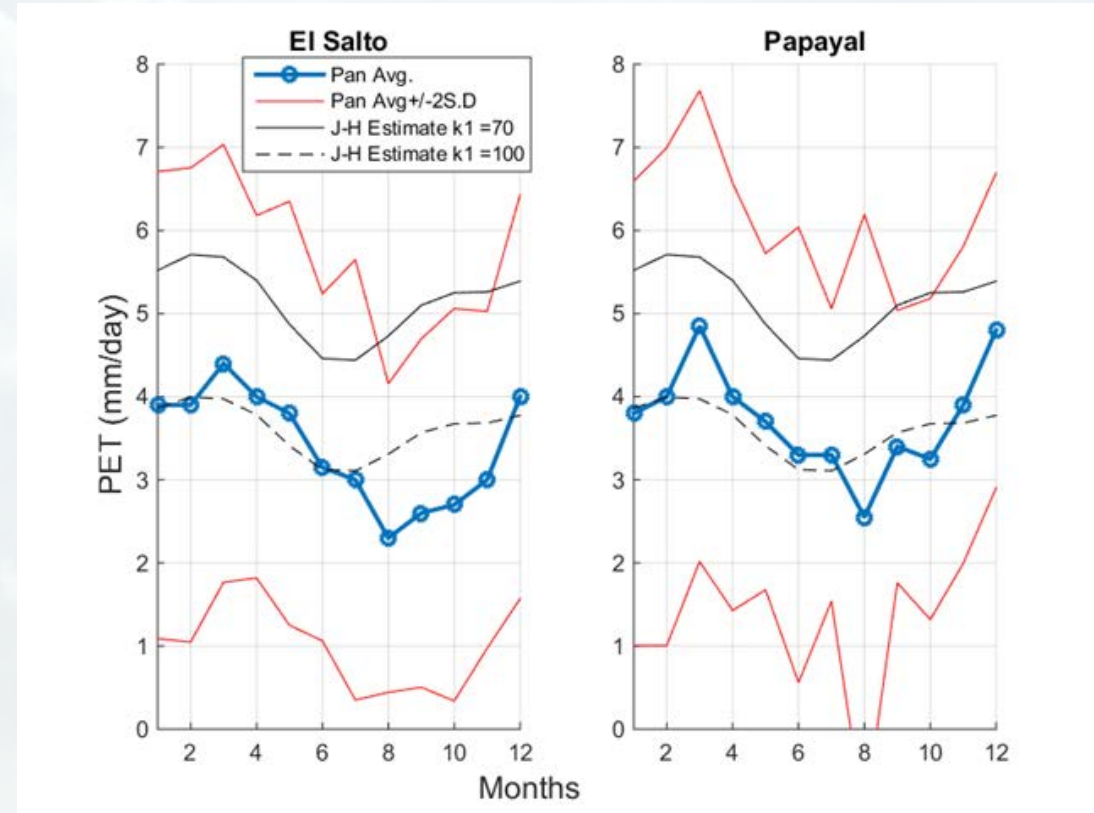
FAO Soil Map of the World



Channel Width (Various Sources and Google Earth)

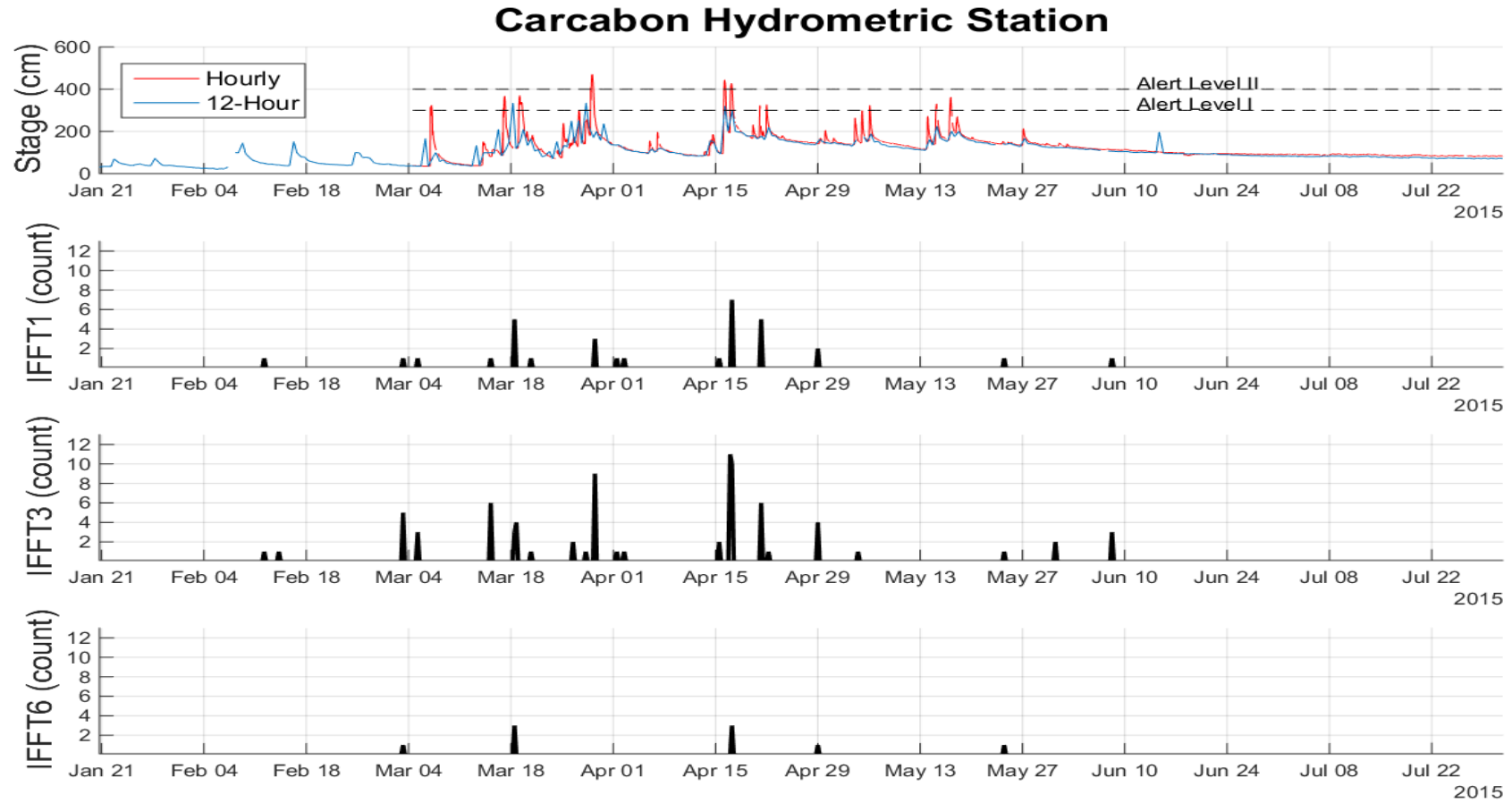


Climate Ref ET – Jansen-Haise (Temp)



Validation with River Data and Alert Levels (2015)

Carcabon Station

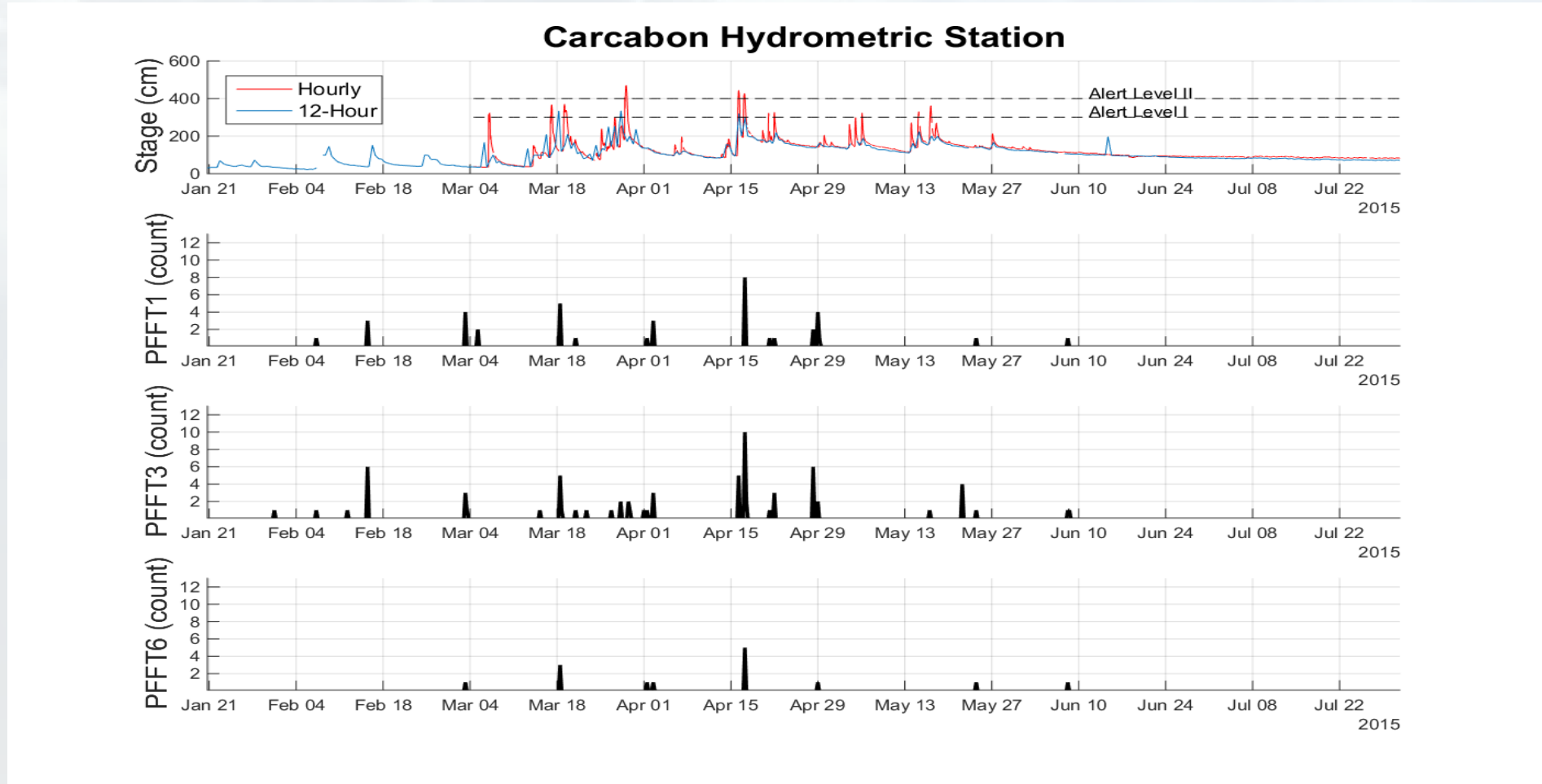


Imminent Threat
FFGS for
Upstream Basins

Validation with River Data and Alert Levels (2015)

Carcabon Station

Persistence Threat
FFGS for
Upstream Basins



SAMFFG - South America Flash Flood Guidance

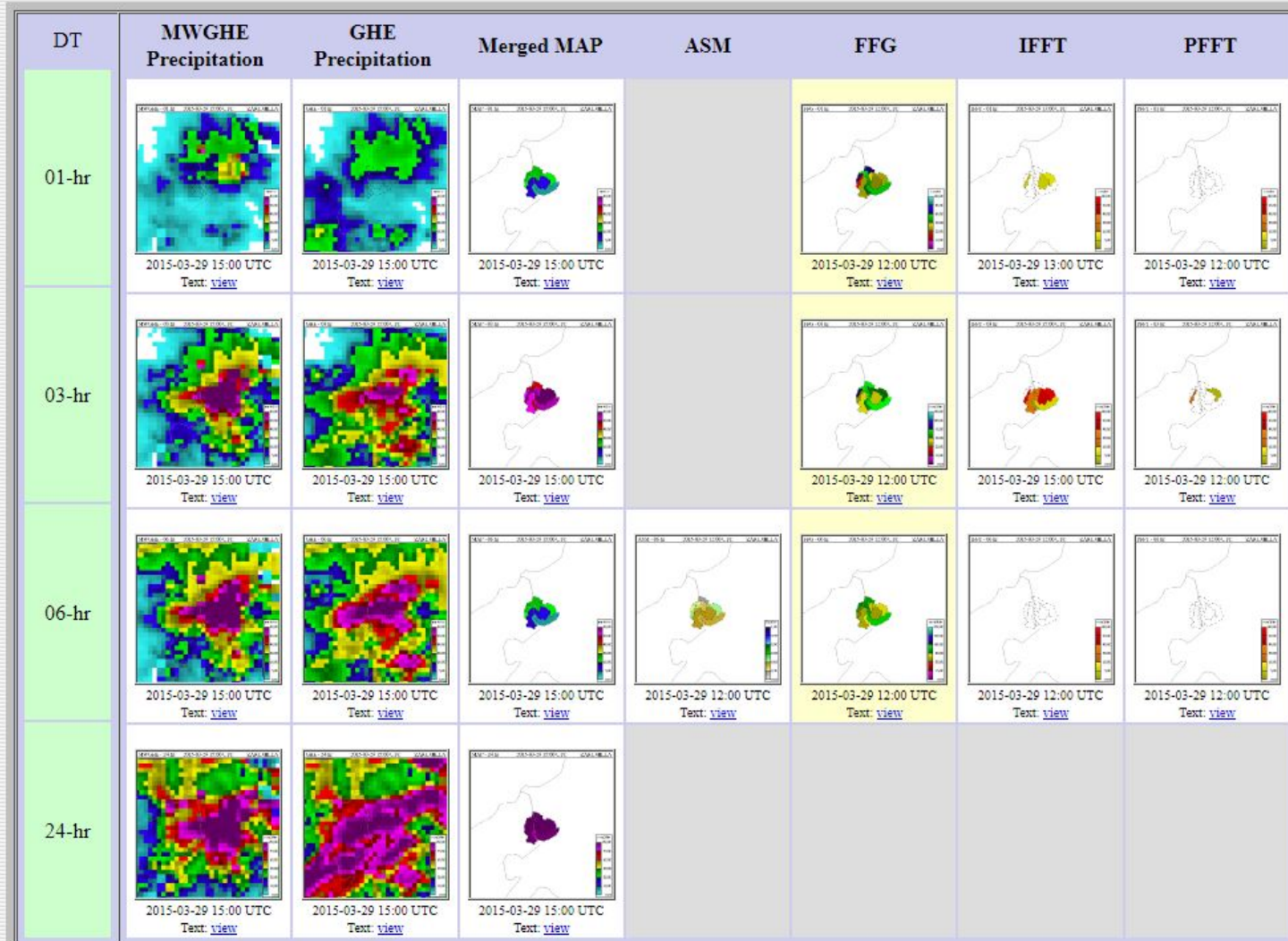
Current Date: 2015-05-15 00:00 UTC

Nav Date: 2015-03-29 15:00 UTC

Year: 2015 Month: 03 Day: 29 Hour: 15

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

Prev 6-hr Interval (12 UTC) Next 6-hr Interval (18 UTC)



Composite Product: [text](#), [CSV](#), [CSV T](#)

SFTP data transfer (requires SFTP Client): [EXPORTS/ZARUMILLA/2015/03/29](#)

Surfnet Gauge Observations at 2015-03-29 12:00 UTC

Station Identifier	Station Name	Accumulated Precipitation (mm/06hr)	Average Temperature (C)	Region	Latitude	Longitude	Elevation	Enable Precipitation Flag	Enable Temperature Flag
M1244	PALMALES	No Report	No Report	ZARUMILLA	-3.67	-80.1	120	Enabled	Disabled
MO182	Carcabon	No Report	No Report	ZARUMILLA	-3.62	-80.18	35	Enabled	Disabled

29 May 2015

SAMFFG - South America Flash Flood Guidance

Current Date: 2015-05-15 00:00 UTC Nav Date: 2015-03-29 12:00 UTC

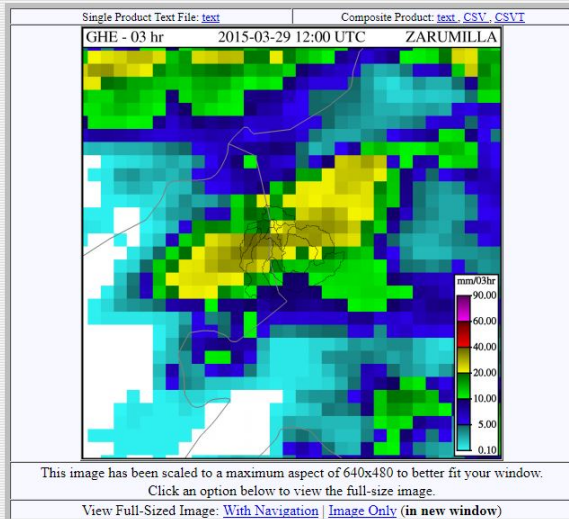
PRODUCT: GHE Precipitation DT: 03-hr

Year: 2015 Month: 03 Day: 29 Hour: 12 Submit

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

Prev 6-hr Interval (06 UTC) Reset to Current Next 6-hr Interval (18 UTC)

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 SAMFFG Real-Time Product Console v.1.0b, Release Date: TBD
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SAMFFG - South America Flash Flood Guidance

Current Date: 2015-05-15 00:00 UTC Nav Date: 2015-03-29 12:00 UTC

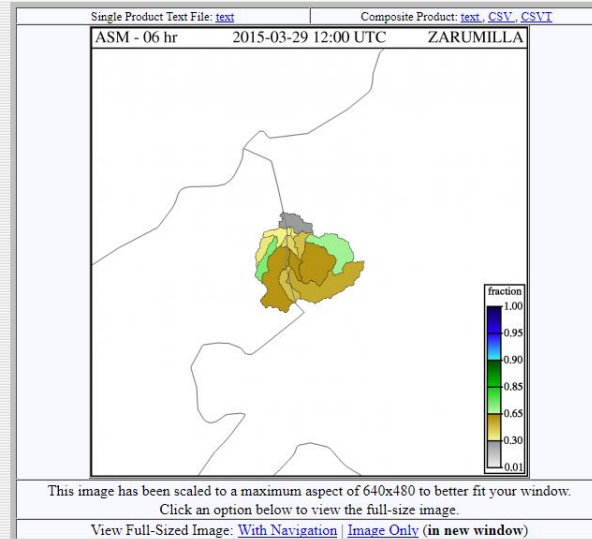
PRODUCT: ASM DT: 06-hr

Year: 2015 Month: 03 Day: 29 Hour: 12 Submit

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

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SAMFFG - South America Flash Flood Guidance

Current Date: 2015-05-15 00:00 UTC Nav Date: 2015-03-29 12:00 UTC

PRODUCT: PFFT DT: 03-hr

Year: 2015 Month: 03 Day: 29 Hour: 12 Submit


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

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COEN
CENTRO DE OPERACIONES DE EMERGENCIA NACIONAL

INFORME DE EMERGENCIA N° 638 - 19/05/2015 / COEN - INDECI / 16:30 HORAS
(Informe N° 09)

INUNDACIÓN AFECTA DISTRITOS DE LA PROVINCIA DE ZARUMILLA - TUMBES

I. HECHOS:


El 29 de marzo del 2015 a las 03:45 horas aproximadamente, a consecuencia de las intensas precipitaciones pluviales, se registró el incremento y posterior desborde del caudal del río Zarumilla, ocasionando inundación y afectando viviendas, vías de comunicación y áreas de cultivo en los distritos de Aguas Verdes, Matapalo y Papayal de la provincia de Zarumilla. CODIGO SINPAD N° 00069541.

El 16 de abril del 2015 a las 10:00 horas aproximadamente, a consecuencia de las intensas precipitaciones pluviales, se registró el incremento y posterior desborde del río Zarumilla, afectando áreas de cultivo en el distrito de Aguas Verdes.

II. UBICACIÓN:

- ✓ Departamento: Tumbes
- Provincia: Zarumilla
- ✦ Distritos: Aguas Verdes, Matapalo y Papayal.

III. MAPA SITUACIONAL

INUNDACIÓN AFECTA AL DISTRITO DE AGUAS VERDES - TUMBES

LEYENDA

- INUNDACIÓN
- Viviendas Afectadas
- Personas Afectadas

Benefits of NWSAFFG System for the Region

Forecaster-usable data Integration from global regional and local sources (includes satellite precipitation data, local data, and numerical weather prediction models)

Forecaster-usable products pertinent to real time forecasting of flash flood occurrence and facilitation of regional collaboration

Extensive training of forecasters on the hydrometeorology of flash floods and on the effective use of the system, including making real time adjustments to increase reliability

Additional products relevant to soil water and agriculture

Enhancements in process relevant to water management, landslide assessments, and urban flash flooding