

SIATA

METROPOLITAN AREA AND MEDELLIN'S EARLY WARNING SYSTEM



Alcaldía de Medellín

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Objective and General Operation

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Monitoring

- Remote Sensors: Radar-Radiometer

- Rain Gauge Network

- Stream Level Network

- Meteorological Network

- Seismic Network

- Livestreaming weather Network

- Soil Moisture Network

Models

- Numerical weather prediction

- Hydrological Model

- Flashflood Model for critical basins

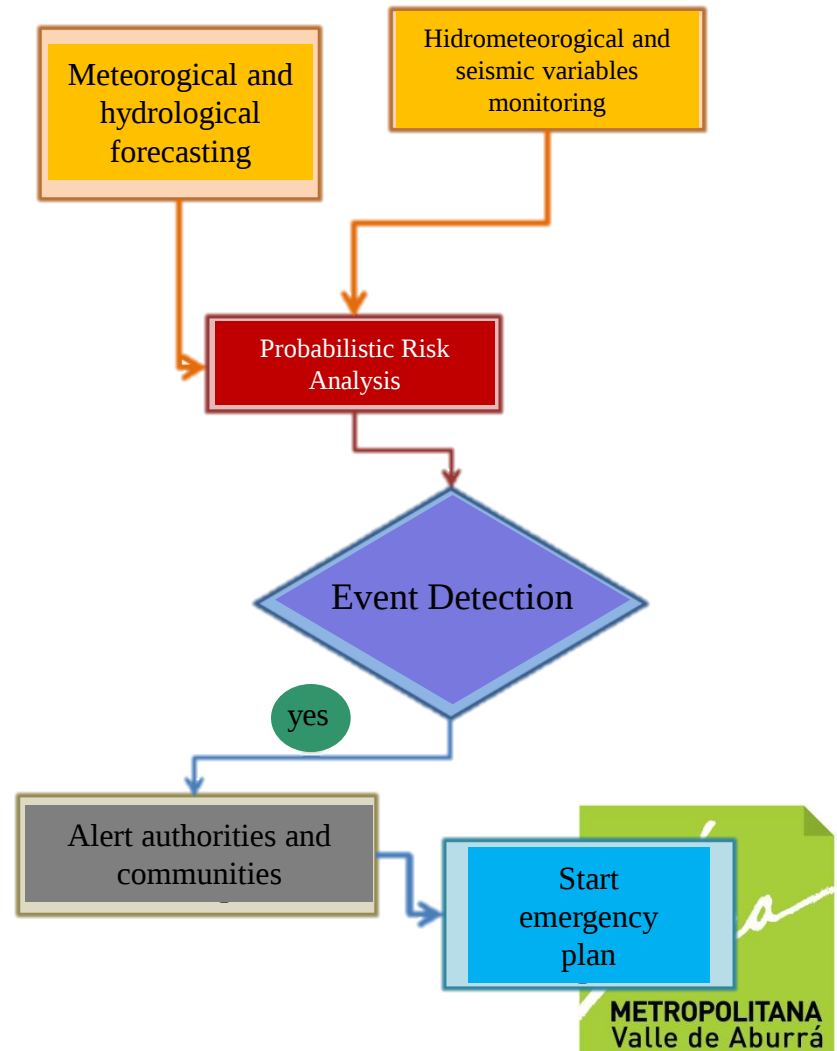
Community Link

- Education and communication



OBJECTIVE AND GENERAL OPERATION

Timely alert governing, rescue agencies and community about environmental/climate related events (flashfloods, landslides) that threaten human lives, houses and life quality



STRATEGIC TASKS

MONITORING

Remote Sensors: Radar-Radiometer

Disdrometer

Seismic Network

Meteorological Network

Rain Gauge Network

Soil Moisture Network

Stream Level Network

Livestreaming weather Network

MODELS

Numerical Weather Prediction

Hydrological Model

Flashflood Model for critical basins

COMMUNITY LINK

Education and Communication

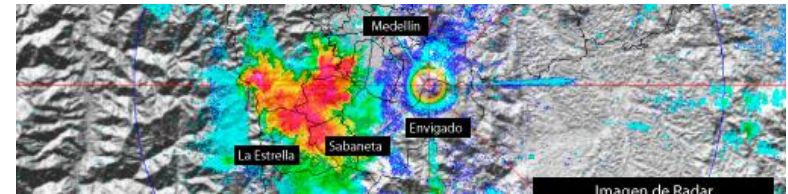


REMOTE SENSORS: RADAR-RADIOMETER

Description



2012 Management



- Meteorological Radar **Operation**
- **Decision** making in the Early warning system using radar information
- Nowcasting **software development** using Radar information
- Radiometer **acquisition**

2012-2013

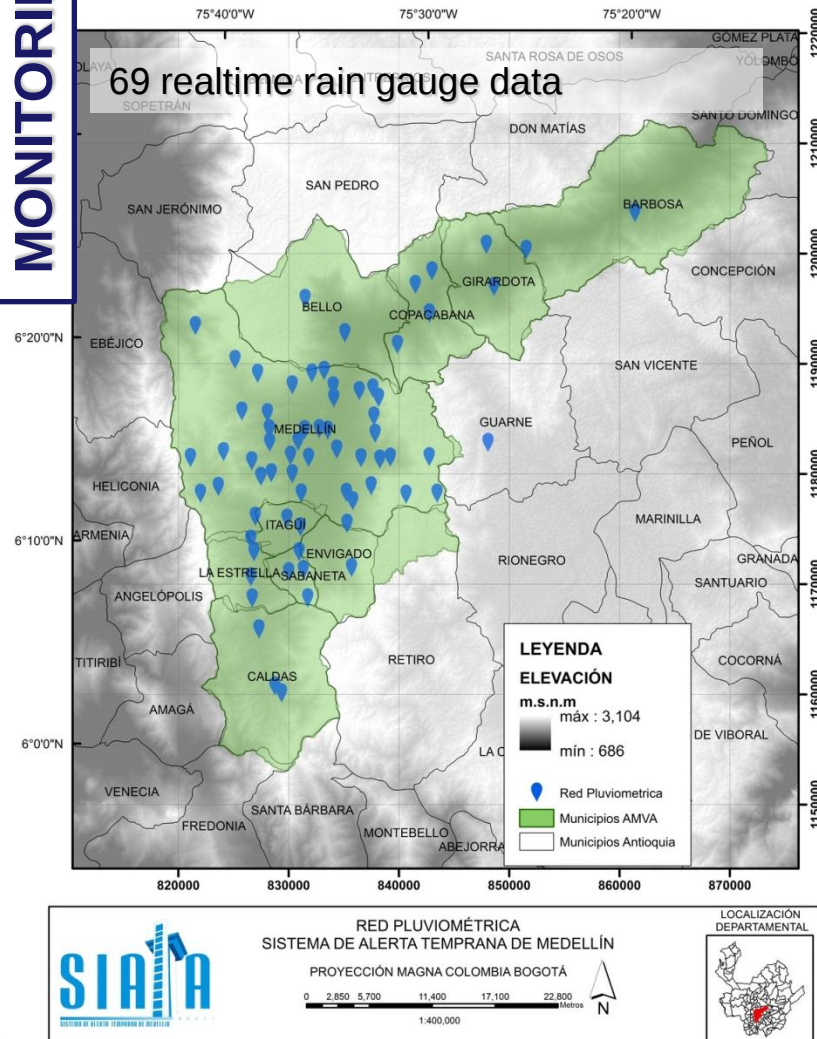
- **Radiometer Operation**
- Radar information integration for a local Tv Channel



RAIN GAUGE NETWORK

MONITORING

Description



2012 Management



- **Acquired 38** rain gauge devices
- installed 11 rain gauges
- **Upgraded 4** gauges
- New gauges were installed in areas with little network covering.
- **Community Alerts (Twitter, emails, WhatsApp, Blackberry Messenger)**

2012-2013

- We aim to upgrade **20** and to install **18** new gauges

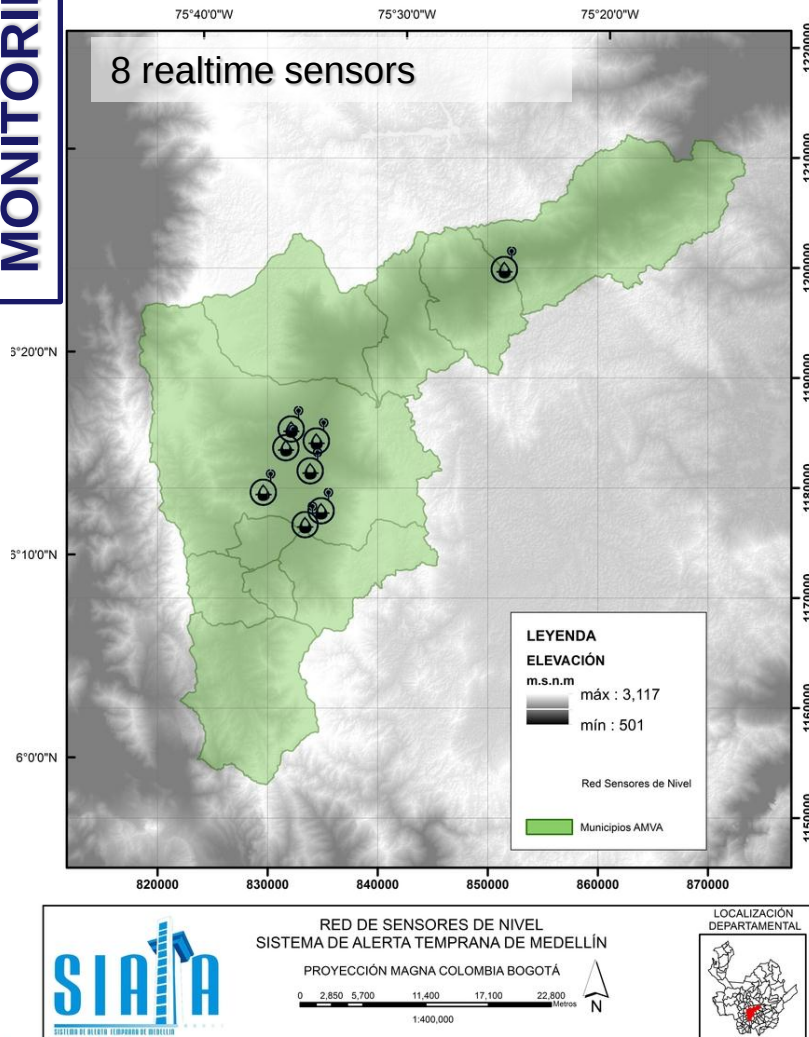


PURA VIDA

STREAM LEVEL NETWORK

MONITORING

Description



2012 Management



- 4 Installed sensors in critical basins
- Community Alerts

Goals 2012-2013

- We aim to install **18** sensors and develop not expensive sensors

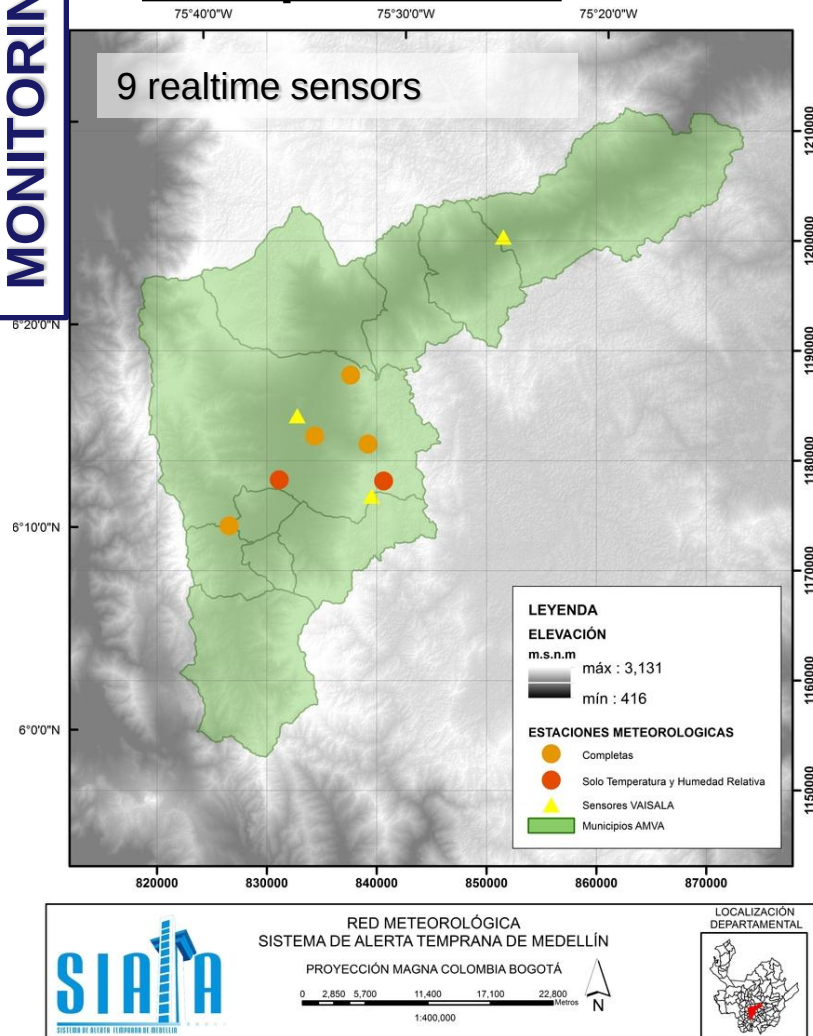


PURA VIDA

METEOROLOGICAL NETWORK

MONITORING

Descripción



2012 Management



- 3 installed sensors
- Meteorological information integration for a local Tv Channel

2012-2013

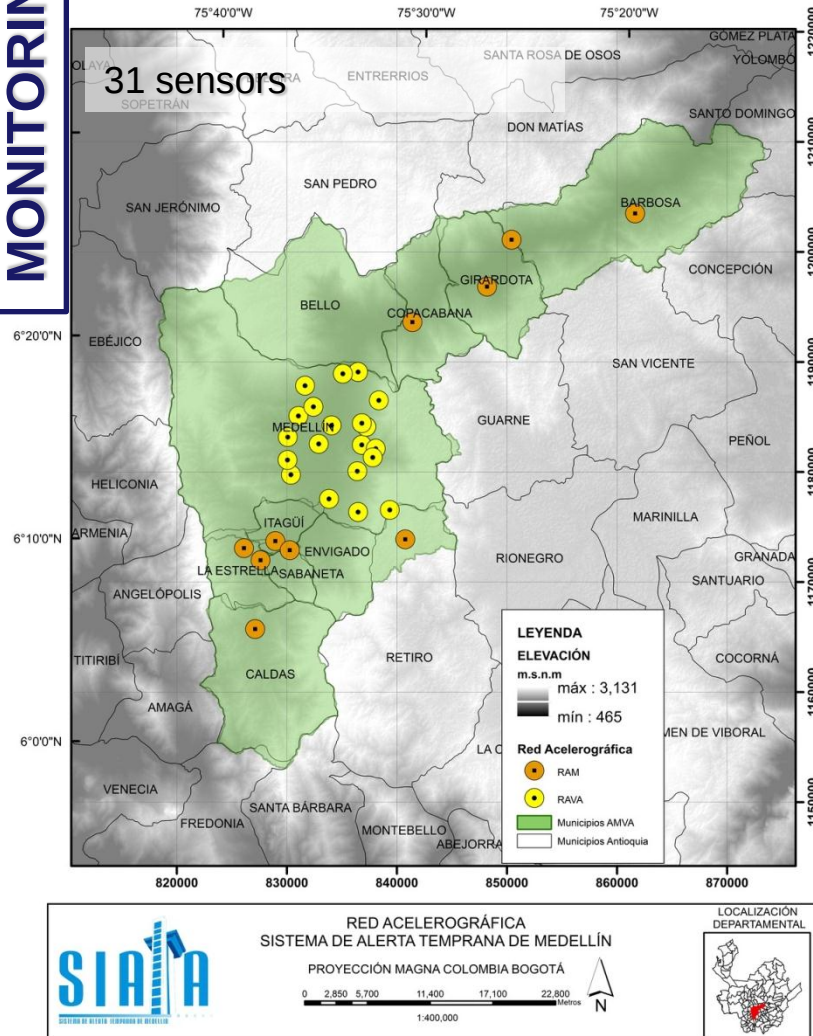
- We aim to install 13 sensors and upgrade the ones we already have



SEISMIC NETWORK

MONITORING

Description



2012 Management



- Acquired 1 sensor
- Development of realtime communication system
- Preventive and corrective maintenance

2012-2013

- We aim to install new sensors

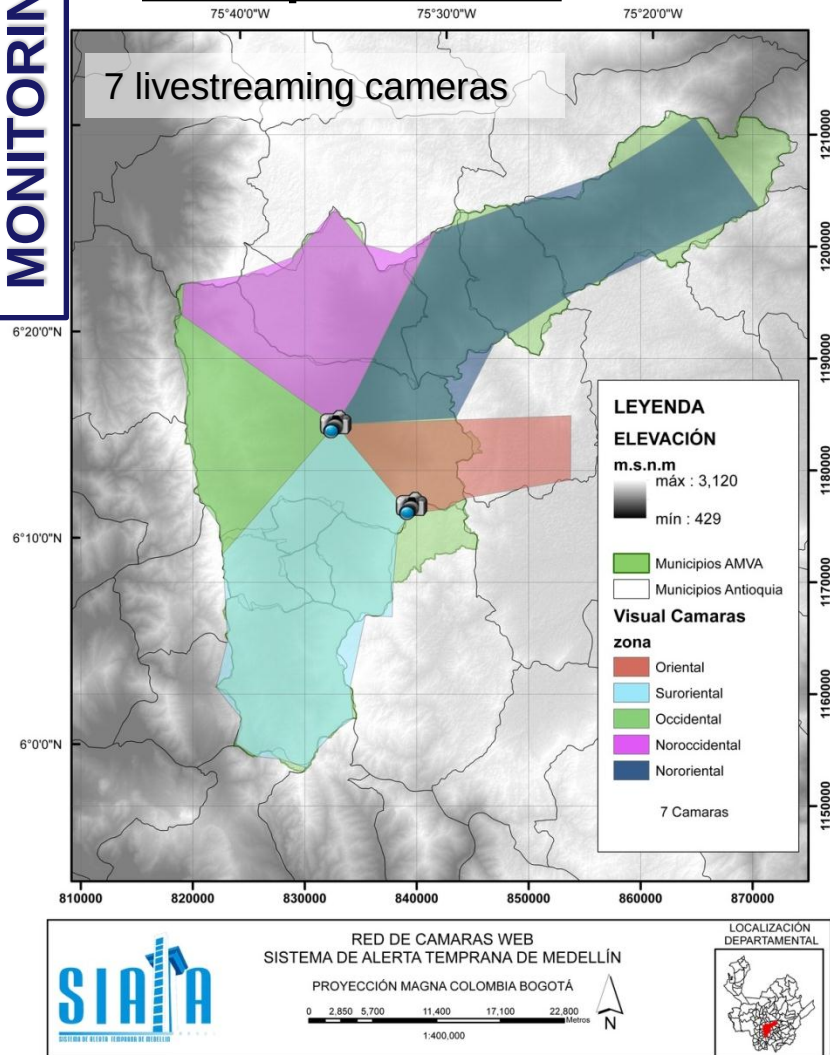


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LIVESTREAMING WEATHER NETWORK

MONITORING

Description



2012 Management



- **5 installed cameras**
- Videos can be found on siatamedellin channel on Youtube and our webpage www.siata.gov.co

2012-2013

- New camera sites



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SOIL MOISTURE NETWORK

MONITORING

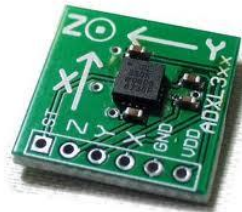
Description

Will have 30 monitoring sites, with sensors at 3 different depths

Soil moisture- Phreatic Surface-Land movements-
Soil Temperature

2012 Management

- Acquired 120 soil moisture sensores
- Electronic System **development**
- Calibration **Tests**
- **Installation Sites Selection**



2012-2013

- Phreatic Surface sensors aquisition
- Accelerometer development

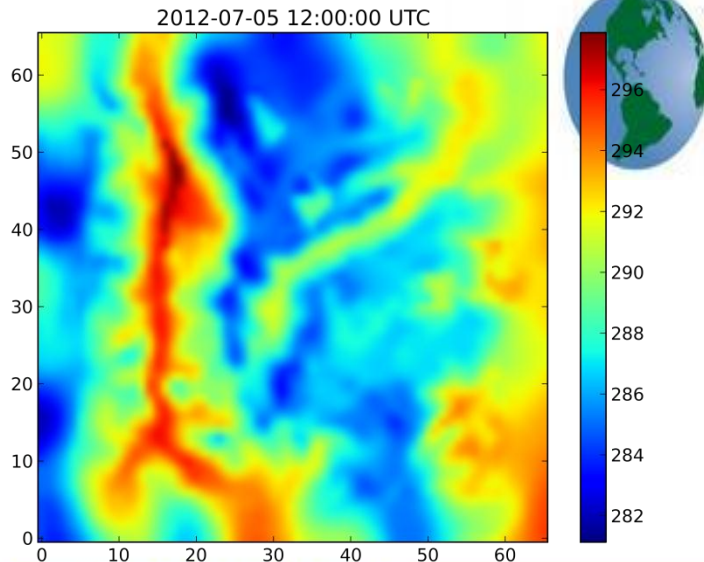
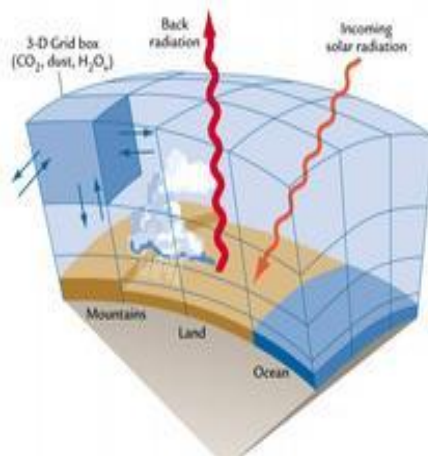


METEOROLOGICAL MODEL

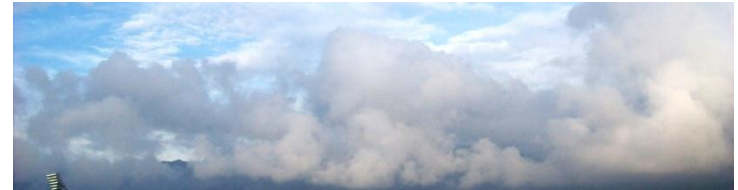
MODELS

Description

Meteorological forecasting model Development



2012 Management



- **Cluster Acquisition**
- **Daily forecast** of weather condition in the valley

2012-2013

- RainFall Alerts based on model output



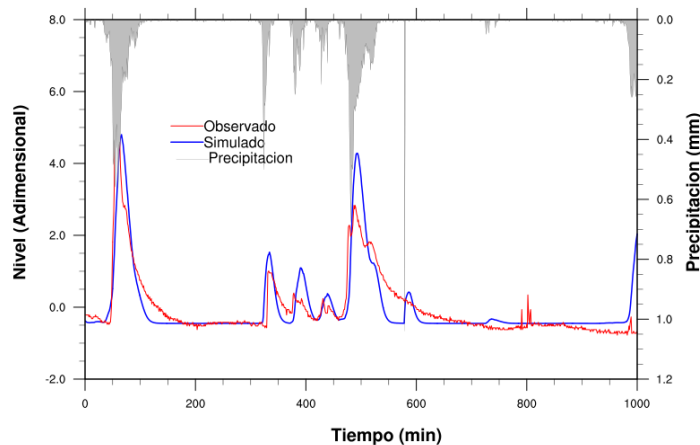
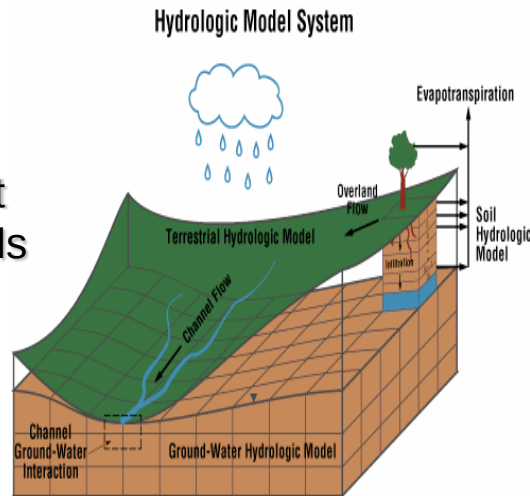
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HYDROLOGICAL MODEL FOR THE MEDELLIN RIVER

MODELS

Descripción

Hydrological model development for river levels



2012 Management



- Model Calibration

2012-2013

- Flooding alerts based on model output



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FLASHFLOOD MODEL FOR CRITICAL BASINS

MODELS

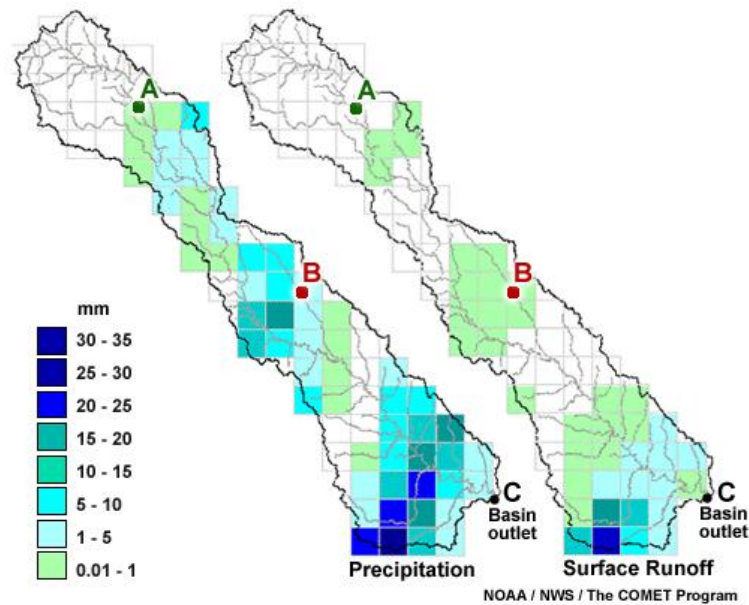
Description

FashFlood Model
Development

2012-2013



Distributed Model Data: Precipitation and Surface Runoff

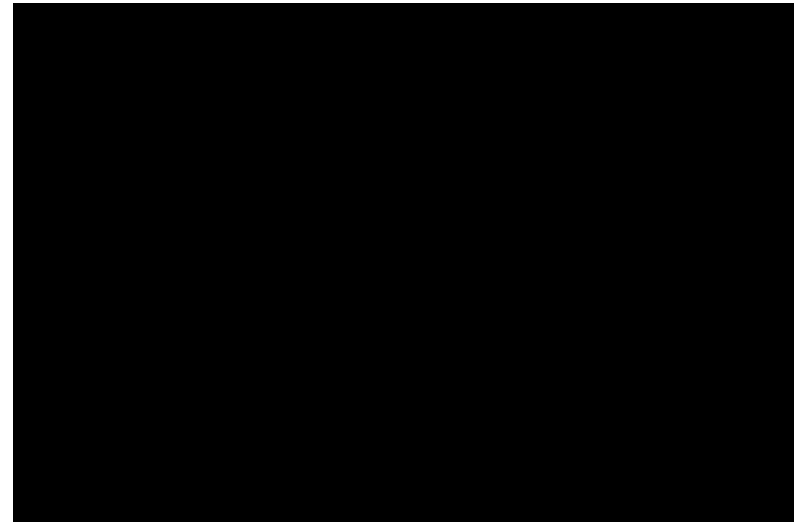


EDUCATION AND COMMUNICATION

COMMUNITY LINK

Description

Workshops with elementary and high school students.



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EDUCATION AND COMMUNICATION

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