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HAZARDSCRC

IMPROVING FLOOD FORECAST SKILL USING REMOTE SENSING DATA - A USER PERSPECTIVE

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An Australian Government Initiative



FLOOD MANAGEMENT IN AUSTRALIA



- Flood damages \$400Mpa
- Extensive rural damages
- Flash flooding in urban centres
- **Commonwealth Gov** – flood warning, funds flood mitigation, policy, emergency mgt
- **State Gov** – flood mitigation, floodplain management, land use planning, emergency mgt
- **Local Gov** – land use planning, flood response
- **Bureau of Meteorology**, national flood warning agency

CLIENTS/USER GROUPS OF THE SERVICE



Foremost – The Community at risk from flooding

- Residents, businesses, etc (urban, rural)

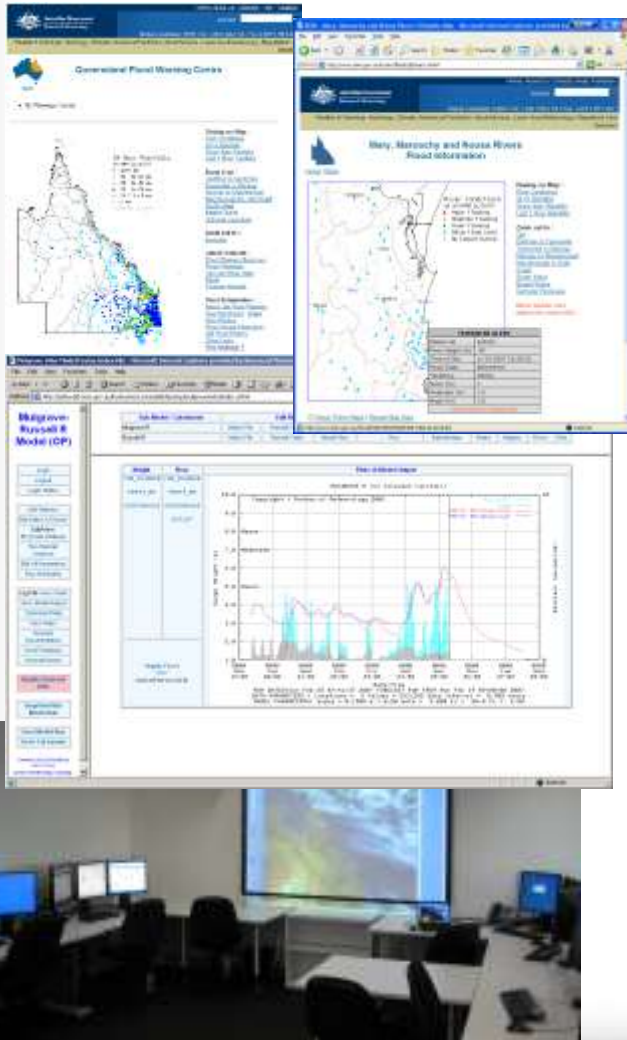
Stakeholder/partnership clients

- Emergency service/disaster management agencies (State Emergency Service, Local Government, Police etc)
- Media (radio, television etc)
- Flood management/flood impacted agencies (dam owners/operators, water, transport, environment, power)

Others

- Day-to-day users of rainfall and water level other purposes such for travel, recreation, farming, construction, research, etc

THE BUREAU'S FLOOD FORECASTING AND WARNING SERVICE



Collect real-time rainfall & river data

- Updated half hourly on Web as maps, tables and plots

Flood modeling

- Simple peak flood height relationships
- 150 basins and 700+ calibrated and operational semi-distributed hydrologic models

Flood warnings & river height forecasts

Provide briefings to agencies

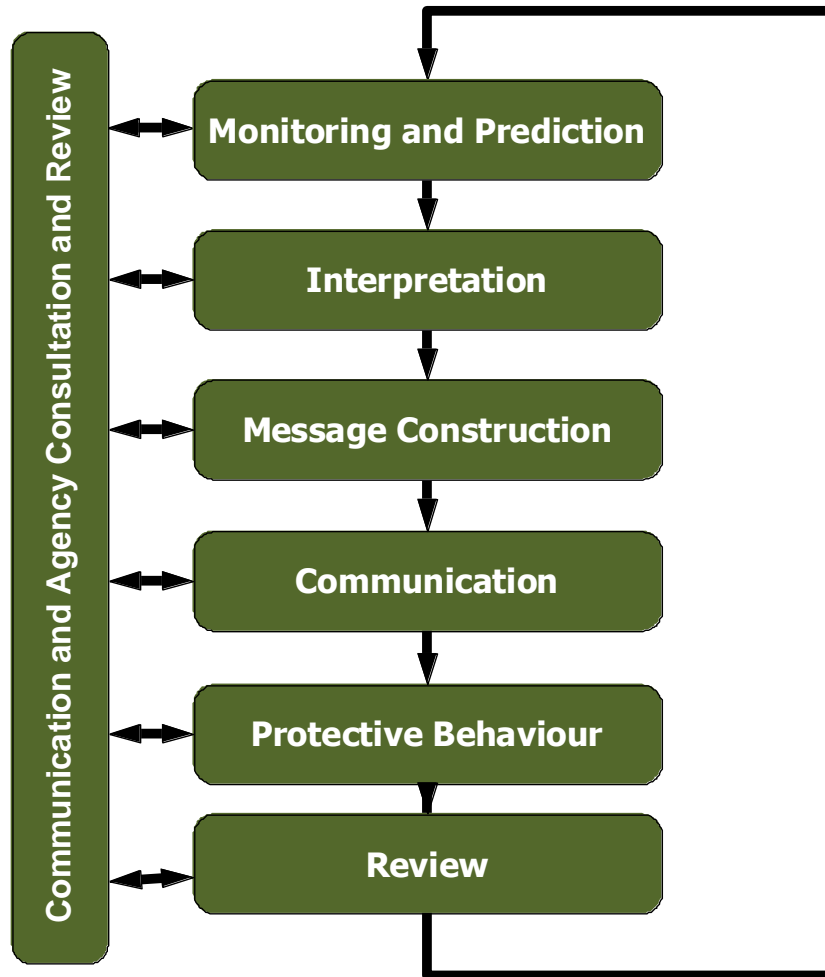
- Emergency Services, Media

Store & analyse historical flood information

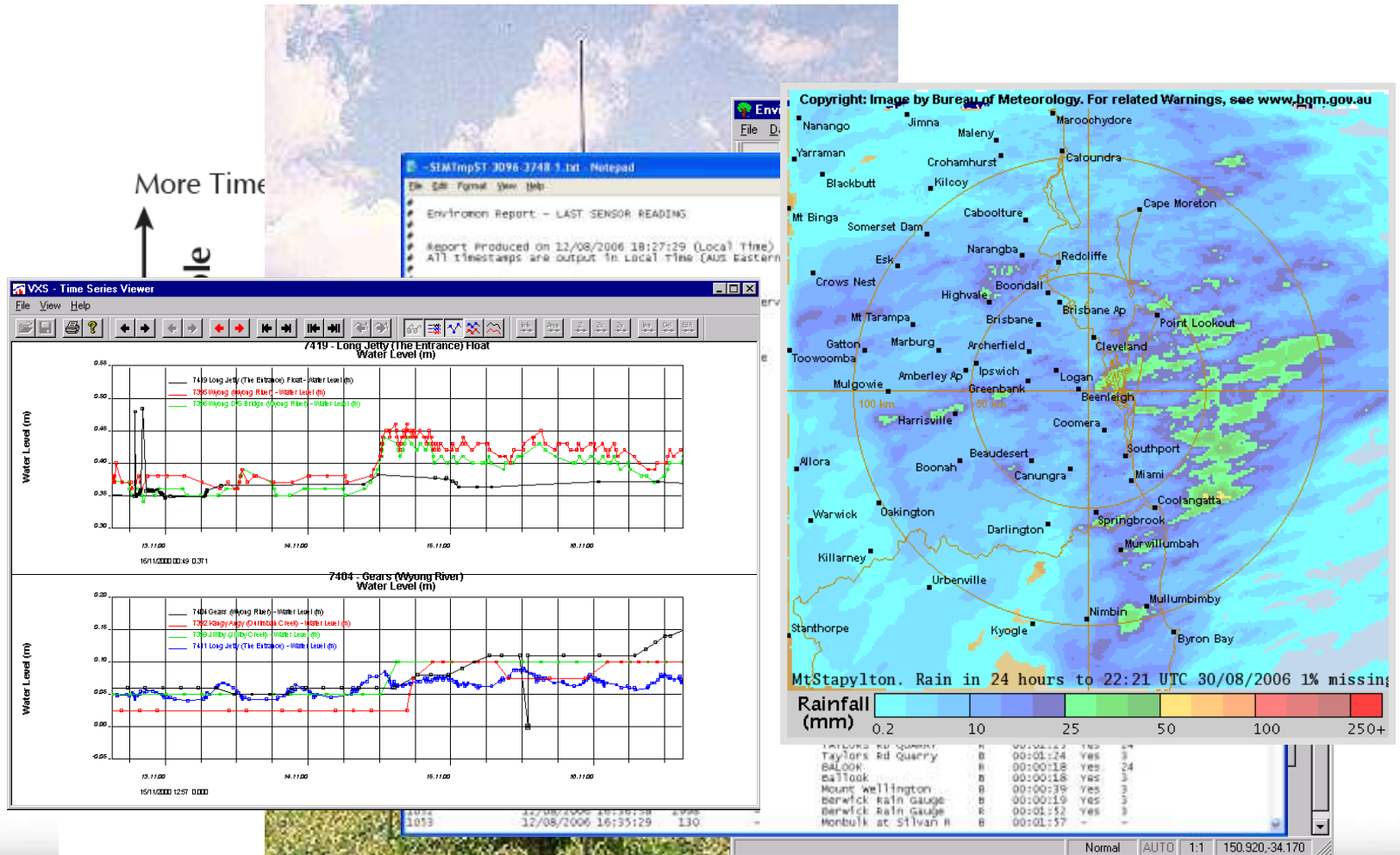
- Including flood warning data, peak heights, effects, flood history

Field work/network management and assistance to other agencies

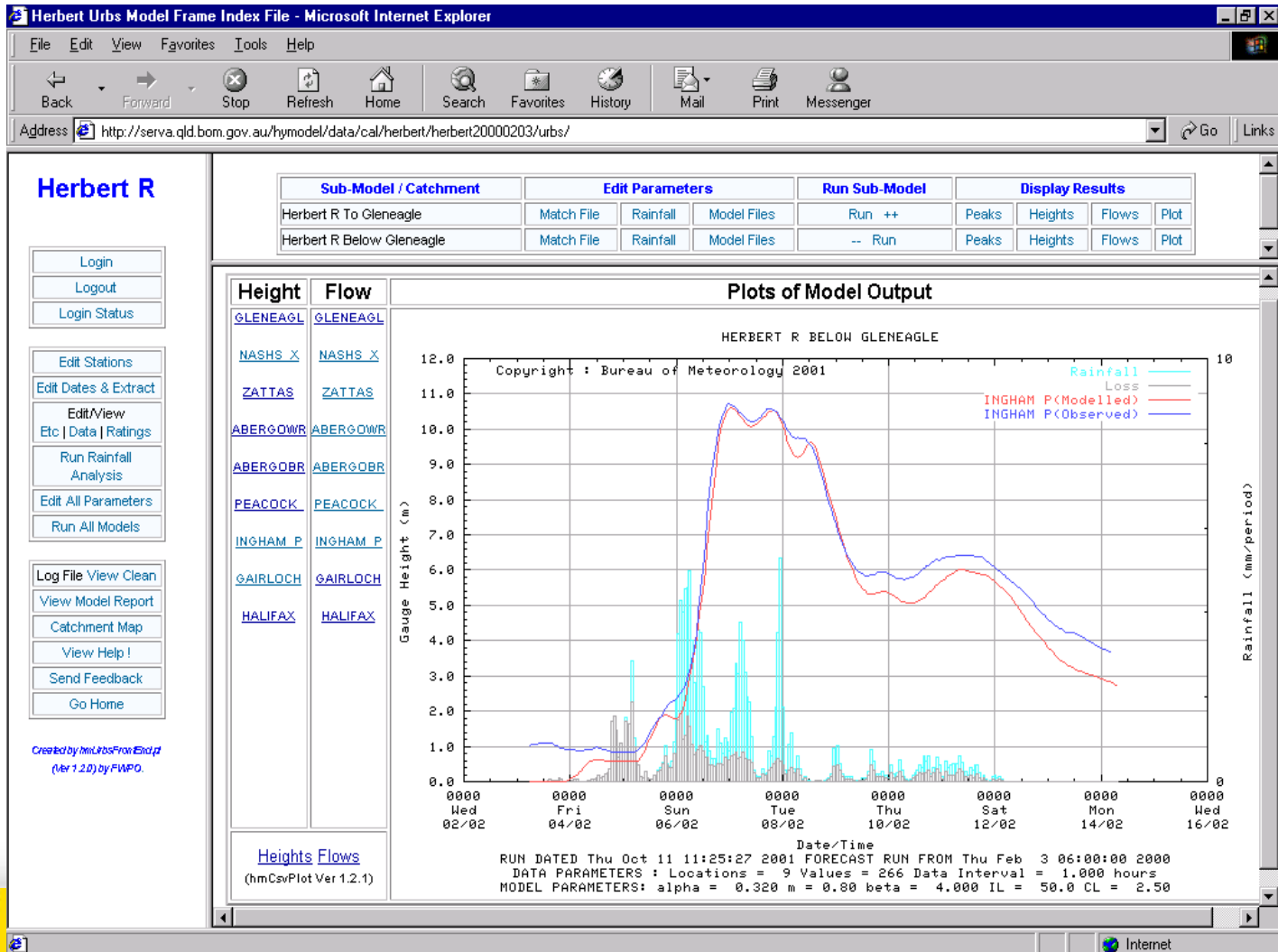
THE TOTAL FLOOD WARNING PROCESS



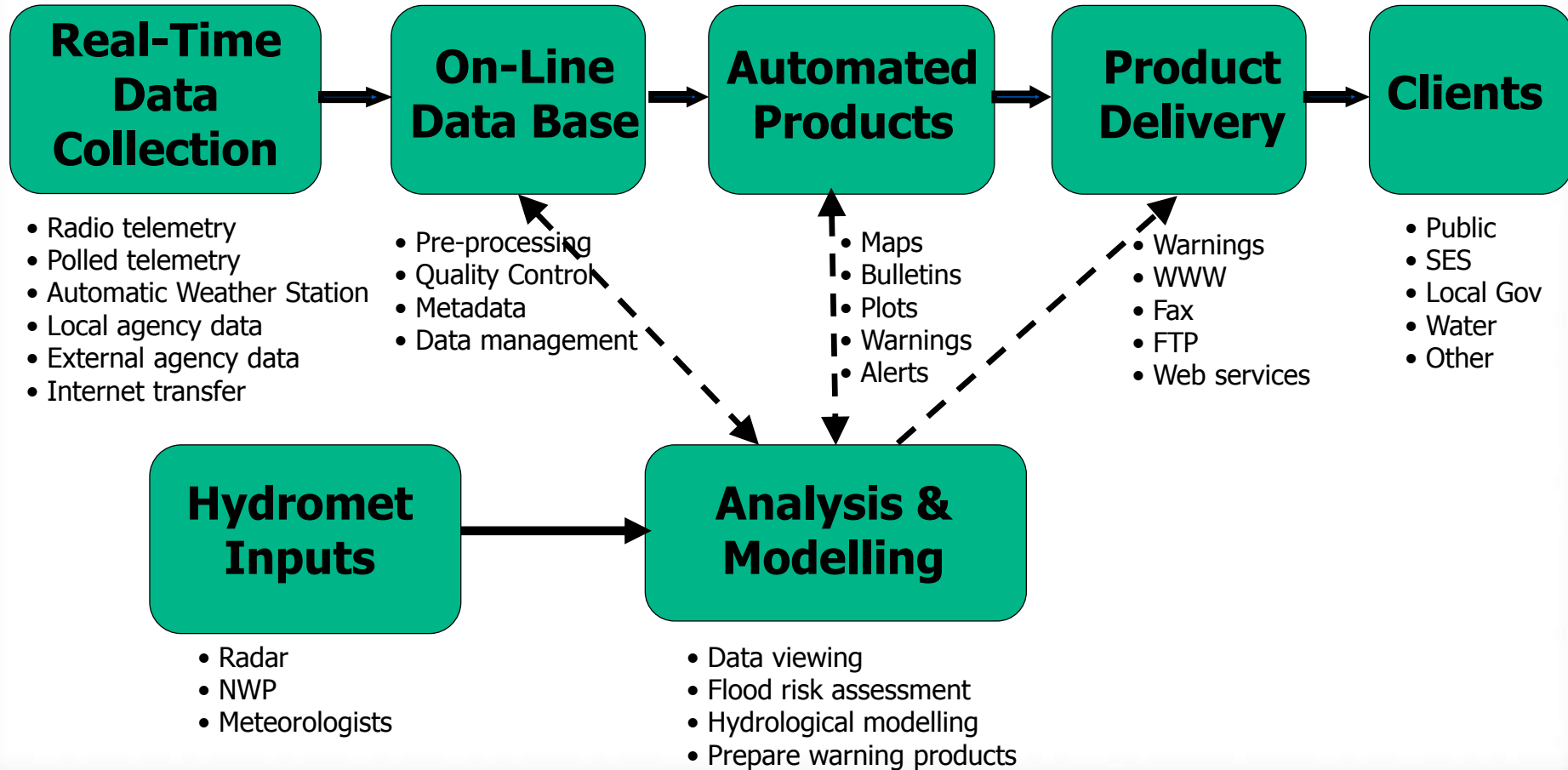
RAINFALL AND RIVER CONDITIONS



FLOOD MODELLING



FLOOD FORECASTING AND WARNING



REAL TIME DATA COLLECTION

Manual



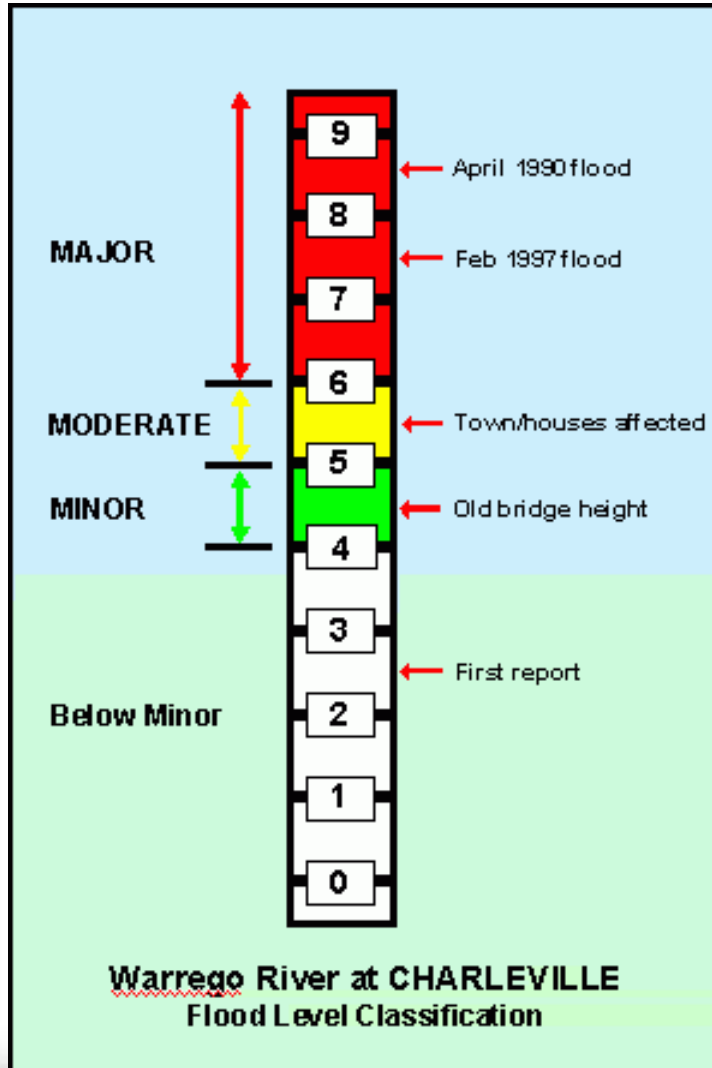
Telephone based
from data logger



Radio based from
ALERT equipment



OUTPUT



BUREAU OF METEOROLOGY

QUEENSLAND REGIONAL OFFICE

Major Flood Warning for Warrego River

Issued at 12am on Friday the 13th March 2002

Average rainfall for the last 24 hours over the catchment has been around 165mm. The rain is expected to continue overnight with further heavy rainfall expected in upper reaches.

River heights:

Warrego River at Charleville 7.8m

River height forecasts:

The river levels are expected to exceed major flood levels early tomorrow.

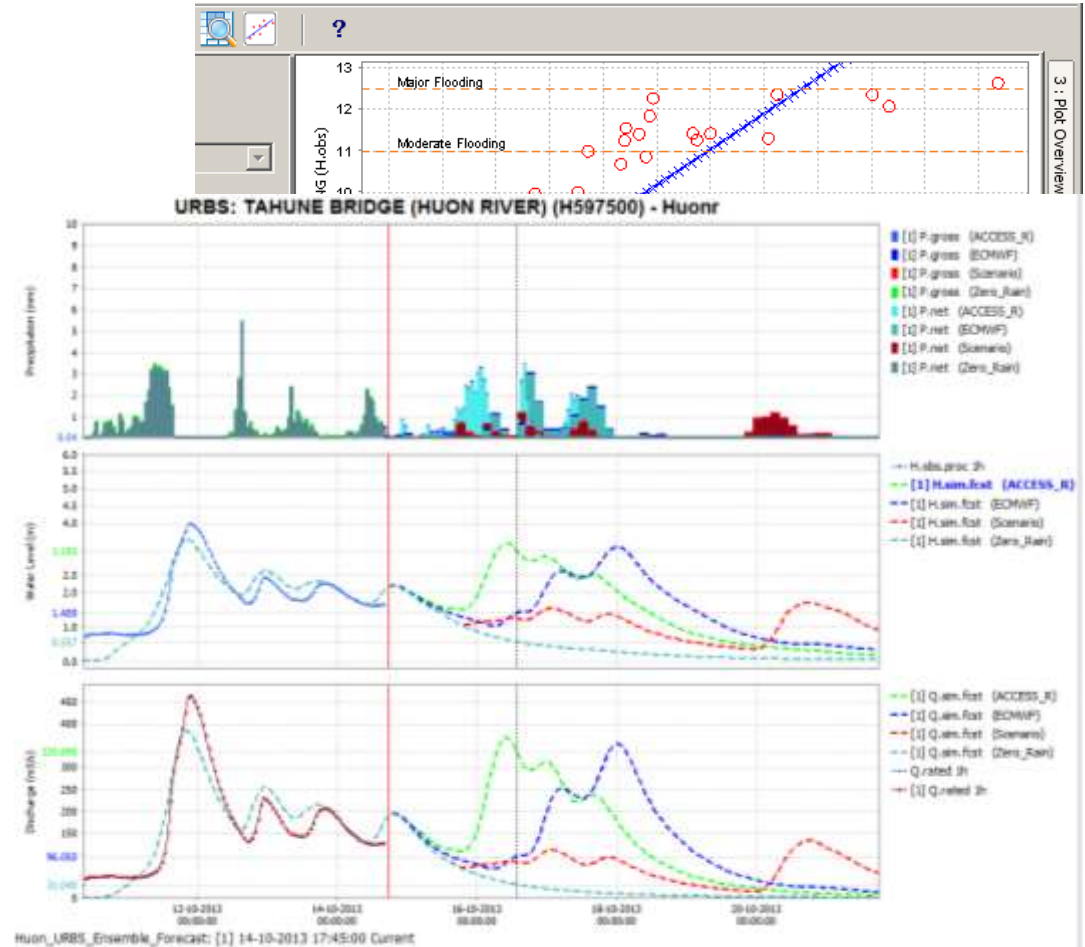
The peak at this stage is expected to be approximately 8.1m which is below the April 1990 flood level, but above the Feb 1997 flood.

Road users are asked to take extra care low level crossings. Some rural roads may experience closure tomorrow depending on developments overnight.

The next warning will be issued 14th March at 6am

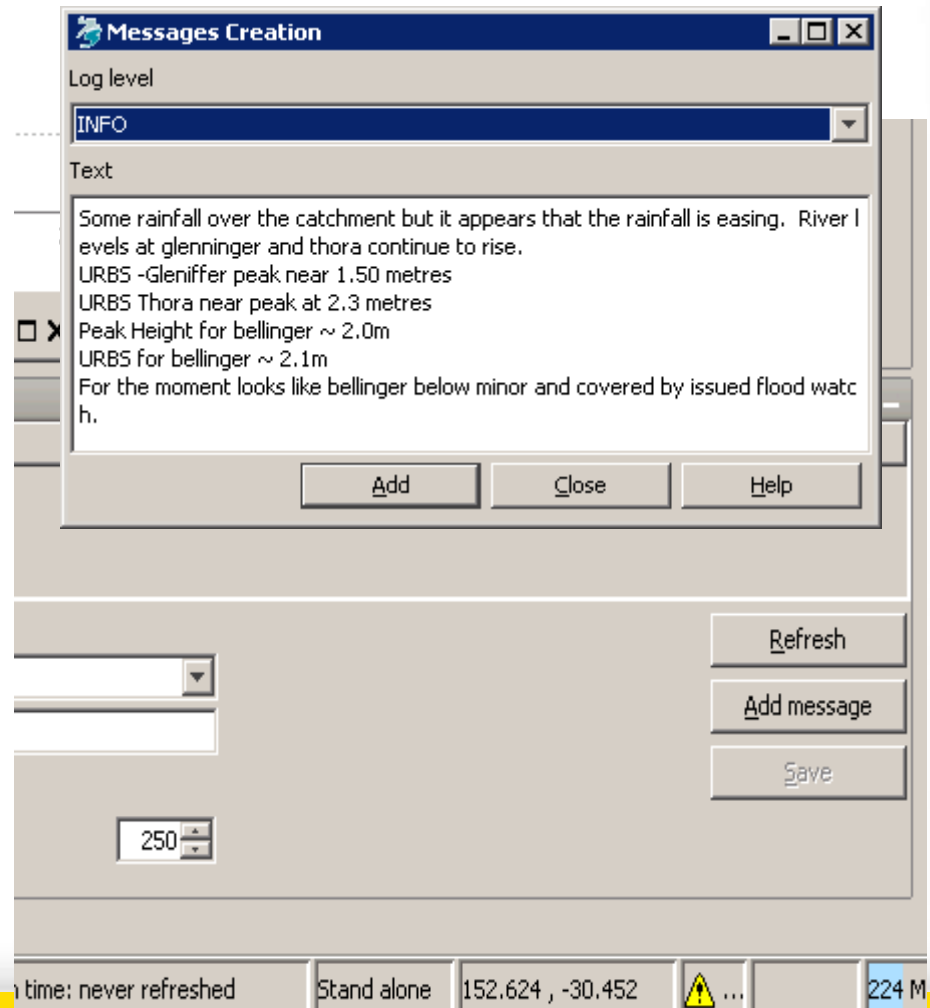
IMPROVED FORECASTING CAPABILITY

- Data visualisation and quality control
- Modelling integrated with flood history
- Enhanced use of QPF



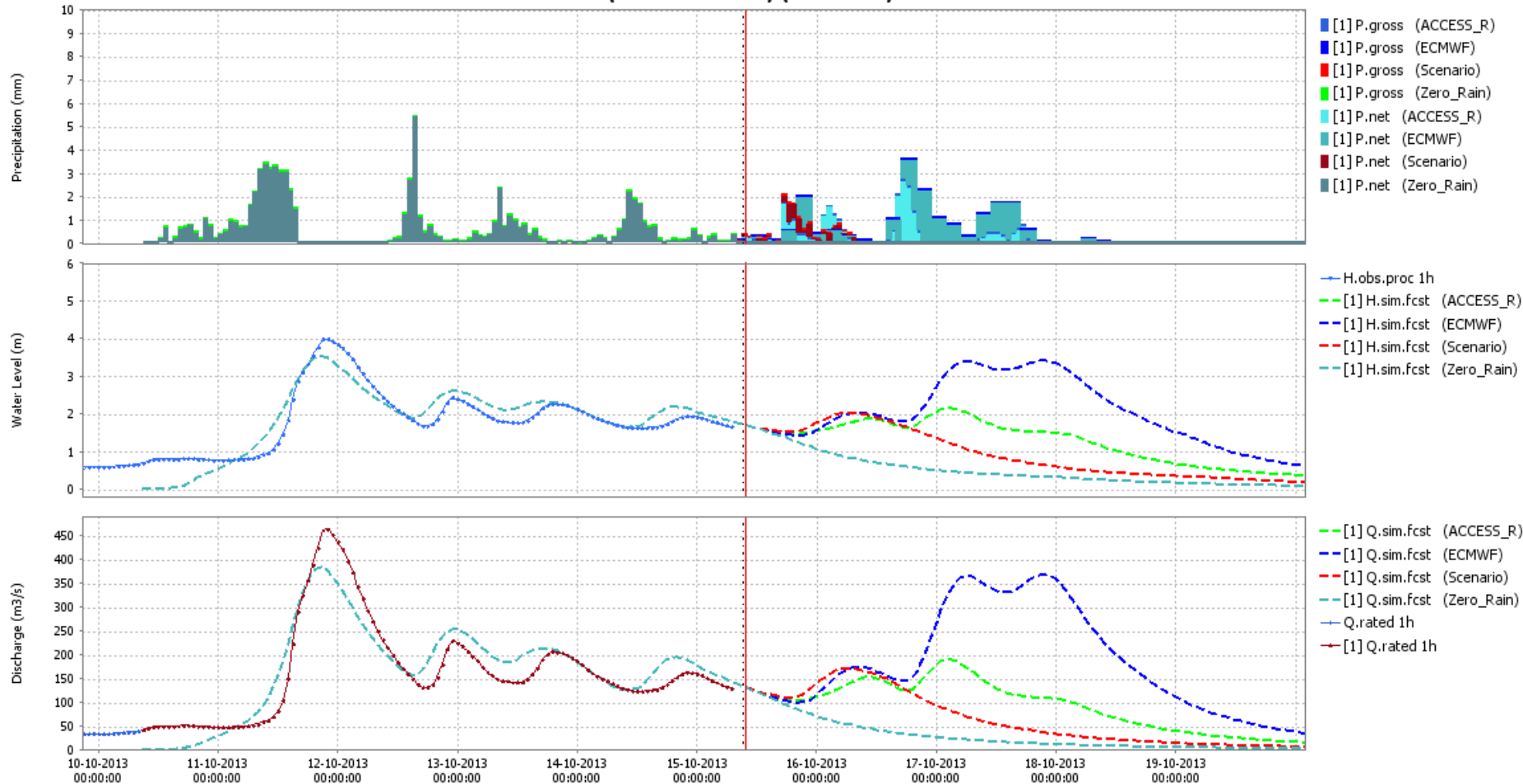
OPERATIONAL BEST PRACTICE

- Forecaster notes and run information
- Training
- Post Flood Review
- Continuous Improvement
- Performance Assessment



BENEFIT FROM ADVANCES IN WEATHER FORECASTING

URBS: TAHUNE BRIDGE (HUON RIVER) (H597500) - Huonr



Huon_URBS_Ensemble_Forecast: [1] 15-10-2013 09:15:00 Current