

The Gloucestershire Floods -

Water, water everywhere but not a drop to drink.



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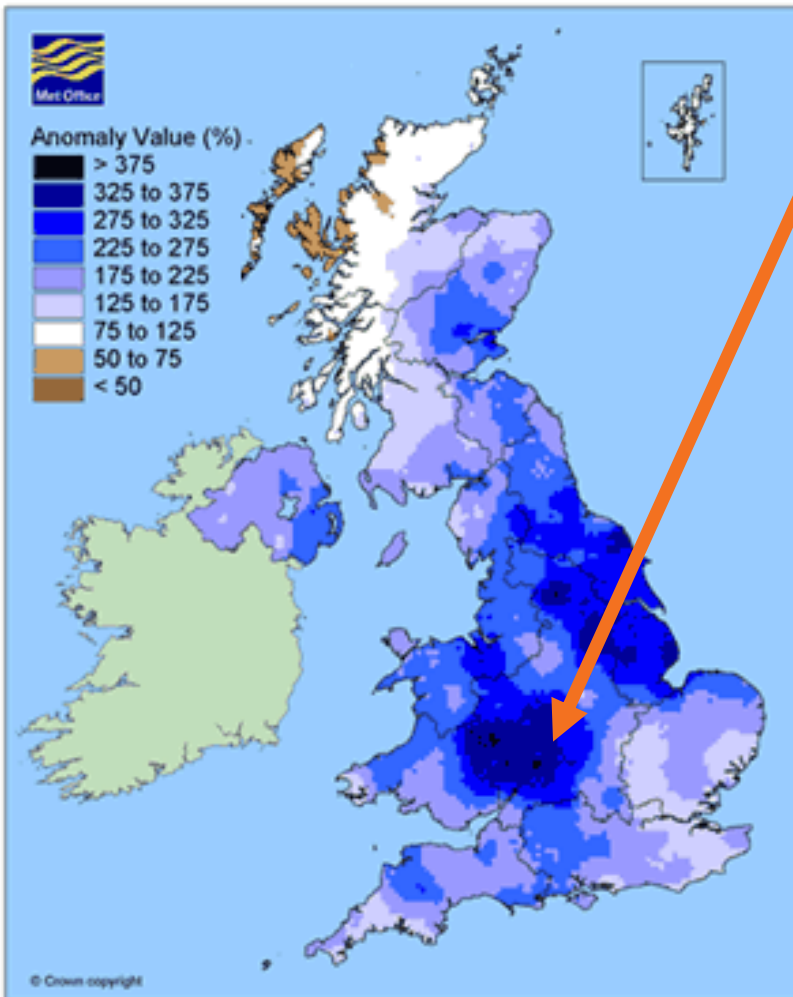
28 November 2007



UK Rainfall

1st June – 22nd July 2007

Rainfall 1 June - 22 July 2007
Percent of long-term average (1971-2000)



Gloucester

Tewkesbury

Cheltenham

- **387 mm (15.2 in) of rain in 3 months**
- **Double the average for the period**
- **Previous biggest summer deluge was 1789 (13.8in)**

WORST-AFFECTED AREAS



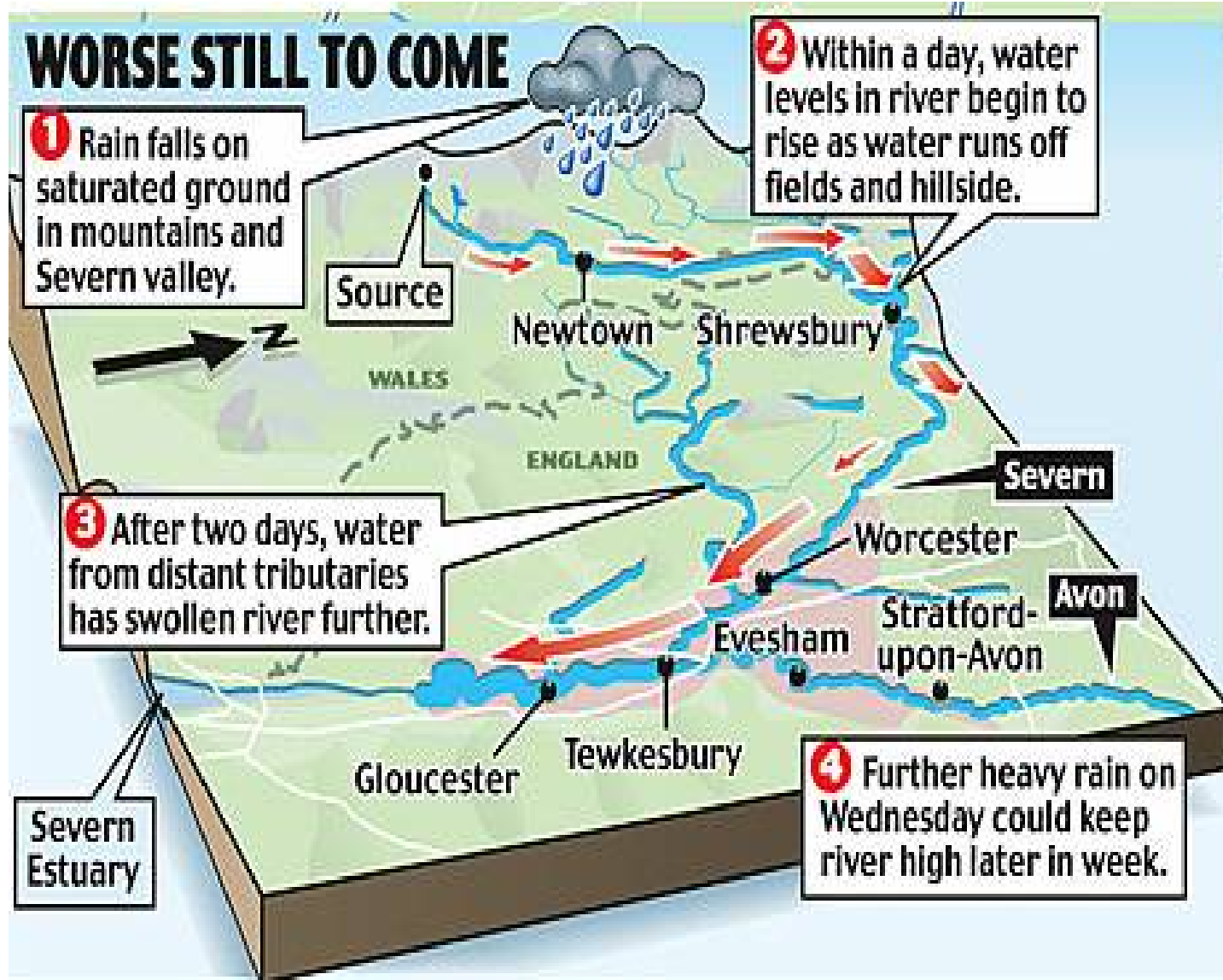
WORSE STILL TO COME

1 Rain falls on saturated ground in mountains and Severn valley.

2 Within a day, water levels in river begin to rise as water runs off fields and hillside.

3 After two days, water from distant tributaries has swollen river further.

4 Further heavy rain on Wednesday could keep river high later in week.





Facts & Figures

- Approx **140,000** households have been affected losing drinking water, electricity or both
- **900** bowsers were put in place across Glos/Chelt/Tewkes and refilled 2 – 3 times a day
- **5 x 18,000** litre water tankers were taken to locations across the country where people could collect water for sanitation
- **20m** litres of water were pumped out of Walham substation overnight

Facts & Figures



- **5m litres** of bottled water were distributed each day
- The normal running supply of water is **120m litres** – the county was supplied with **6m litres**
- The County Council estimates a repair bill of around **£25m**
- The PM announced **£46m** in aid for flood stricken areas of England
- Insurance companies face paying out **£2.5bn** for damage
- **10** instances of criminal damage

Northern Bypass



Walham Substation





Significant Events

Friday 20th July

Heavy rainfall begins

Severe Flood Warnings on the River Severn by the EA

Sunday 22nd July

Mythe Water Treatment Works Flood and water supply runs dry
(*CEO declares a major incident*)

Monday 23rd July

350,000 people (140,000 households) with out water

30,000 people without electricity when Castlemeads substation is switched off

Tuesday 24th July

48,000 people have their electric reconnected when Castlemeads substation is back on line



Significant Events

Wednesday 25th July

Prime Minister visits Walham substation, which was saved through extreme hard work

Thursday 26th July

30,000 homes to have water reconnected in next 24hrs

2 men die after pumping water out of a Rugby Club in Tewkesbury

Friday 27th July

Water supply reconnected to Tewkesbury – sanitation only

Sampling begins

Severe flood warnings reduced

Monday 30th July

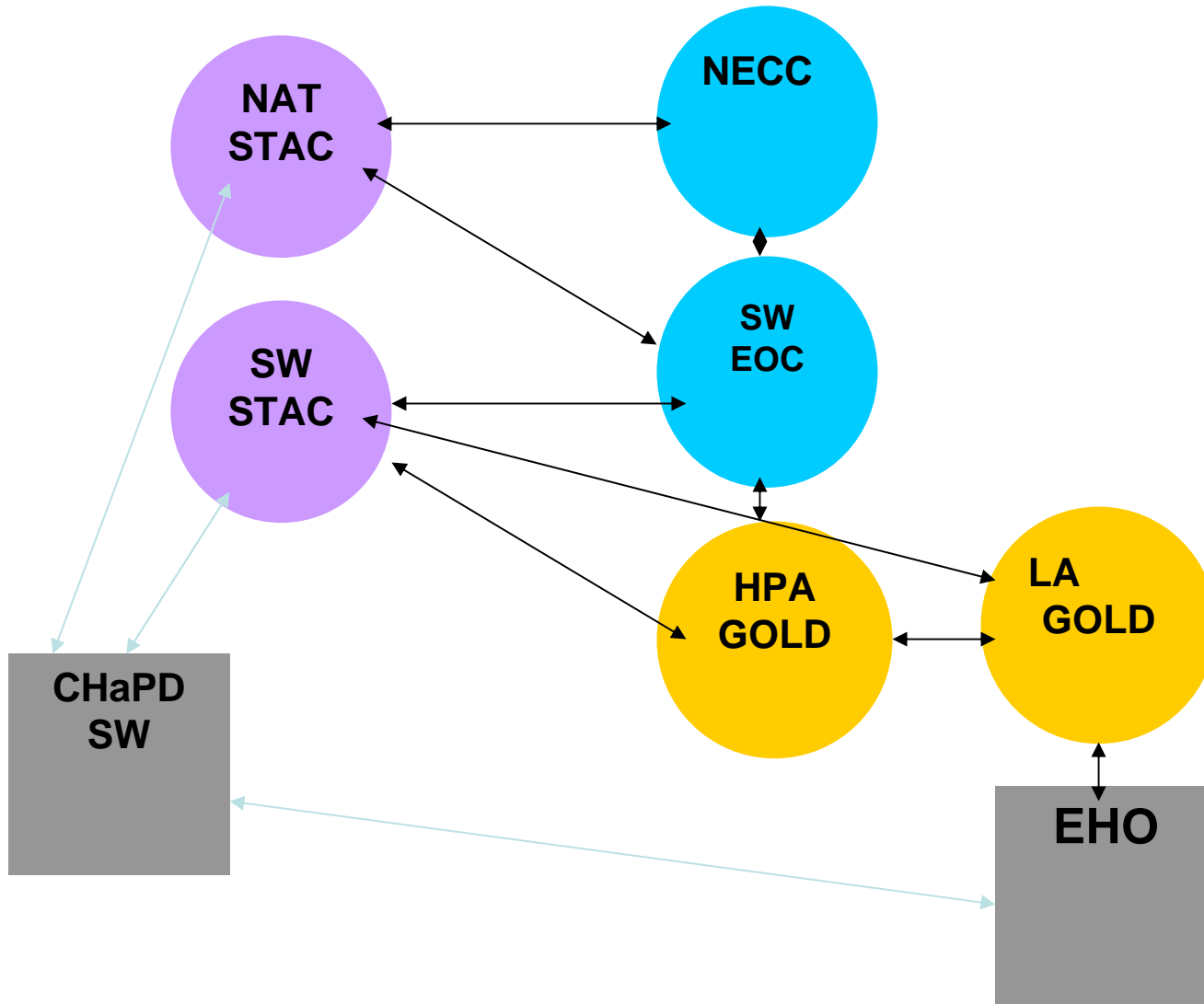
Water reconnection for thousands more affected homes

All severe flood warnings removed

Issues Covered

- Incident Management
- Role of HPA
- GIS and Mapped Information
- Surveillance
- Post Flooding
- Risk Assessment

Incident Management



Incident Management

- **Preparedness**

- Realistic and coordinated plans

- Comprehensive hazard identification

- Well established lines of communication

- Pre-prepared advice

- **Role and function of local authorities**

- Emergency planners v Environmental health

Role of the Health

Protection Agency

The Health Protection Agency is an independent body that:

- protects the health and well-being of the population
- plays a critical role in protecting people from **infectious diseases**
- prevents harm when hazards involving **chemicals, poisons** or **radiation** occur
- prepares for new and emerging threats, such as bio-terrorist attack or virulent new strain of disease.

The Agency has no statutory powers (other than to exist) except as a Category 1 Responder in CCA

GIS and Mapped Information

- Environment Agency - Flood Plain Maps
- Local authority – Comprehensive premises etc
- HPA SW/ EA/ LA Hazard Maps – IPPC and LAPC sites

Surveillance

Health Protection Agency:

- Gastrointestinal infections
- Food and water borne infections
- Upper respiratory tract infections
- Legionella
- Other waterborne infections
- Carbon Monoxide poisoning

Environment Agency

- Floodwater

Food Standards Agency

- Crops and agricultural land

Post Flooding Hazards

- Identification of potential industrial pollution
 - 71 sites
 - Underground storage
 - Sewer reflux
 - Landfills
- Soil and surface contamination
- Mould exposure in flooded property clean up
 - Asthma and allergies
- Displaced rodents – leptospirosis
- Stagnant water – mosquitoes and other insects
- Drinking water quality
 - chemical parameters
- Legionella after water reconnection
- Exposure to hazardous cleaning products

Risk Assessment

Resource allocation

Prioritisation of response

New rapid assessment tool for acute and chronic chemical exposures

Hazard identification and assessment matrix

Prevention v cure

Availability of robust advice before, during and after

Lessons Learned

- Identify role of environmental health in emergencies
- Engage the emergency planning process at all levels
- Ensure EH role and function is clearly set out in emergency plans
- Keep contact details and arrangements up to date
- Prepare and agree relevant health advice for website/ other media
- Ensure resilience arrangements for mutual aid agreed and in place
- Participate in hot wash-up process with EP to share issues and actions
- Publish/ share experiences with colleagues and fellow professionals