

NATIONAL PEAK FLOW DATA – WHAT NEXT?

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National Flood Data (Annual Maxima / Peaks Over Threshold)

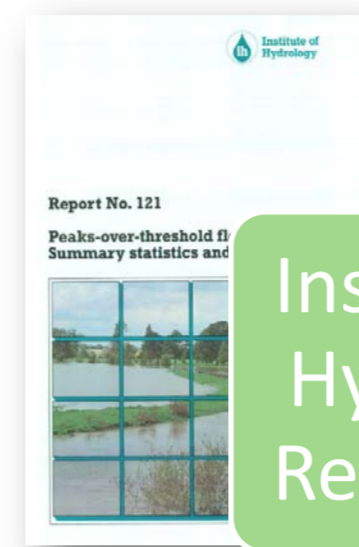
Flood Studies Report

DoE Water Data Unit Update

1975

1980

1985



Institute of Hydrology Report 121

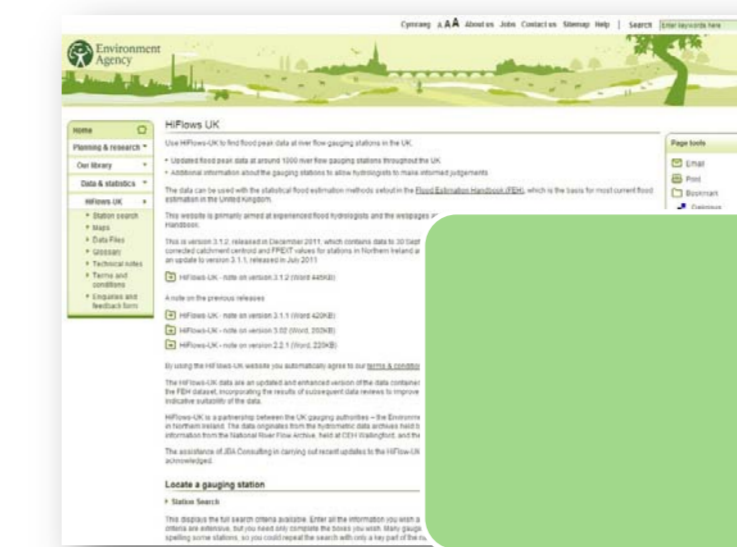
1990

1995



Flood Estimation Handbook

2000



HiFlows-UK

2005

2010

2015

National River Flow Archive

(Daily / Monthly Mean Flow) **National Water Resources Data**

DoE Water Data Unit

National River Flow Archive (NRFA)

Background

In April 2014, working with the EA, SEPA, NRW and the Rivers Agency, CEH launched a national peak river flow data service to replace HiFlows-UK. Responsibility for the provision of national data to support flood estimation was transferred from the HiFlows-UK initiative, where data had been hosted on the EA website, to the National River Flow Archive (NRFA).

The NRFA is maintained by CEH working in partnership with the UK's hydrometric measuring authorities, on behalf of the UK and devolved governments. The Archive is the UK's focal point for hydrometric data, and already provides stewardship of, and access to, daily and monthly river flow data for some 1500 gauging stations nationally.

Originally established for water resource monitoring purposes, the NRFA, and its precursor organisations, traditionally focused on the provision of daily and monthly river flow data. Peak river flow data, which form the basis of most of the UK's flood risk assessments, have until now been managed under separate initiatives (see above timeline). The move to fully integrate delivery of peak flow data with the NRFA's existing services means that, for the first time since the national collation of hydrometric data was initiated in 1934, a single source of UK wide data is available to support water resources and flood risk management.



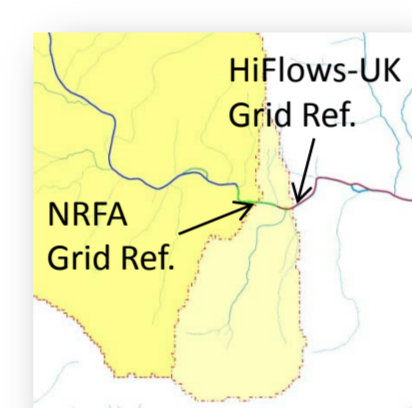
High flow gauging on the Thames at Shillingford in Feb 2014 (Photo: Environment Agency)

Progress So Far

The differing histories and data management of the two national datasets meant that both systems and database content had to be integrated:

Database Integration

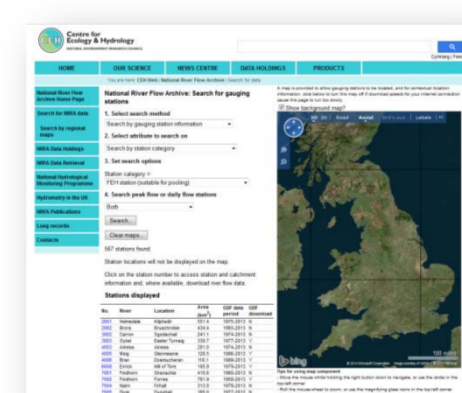
The process of harmonising the content of this dataset with information already held on the NRFA began in autumn 2013. The data harmonisation has been completed for key metadata, including: station numbers, river names, station names, geographical locations and station types.



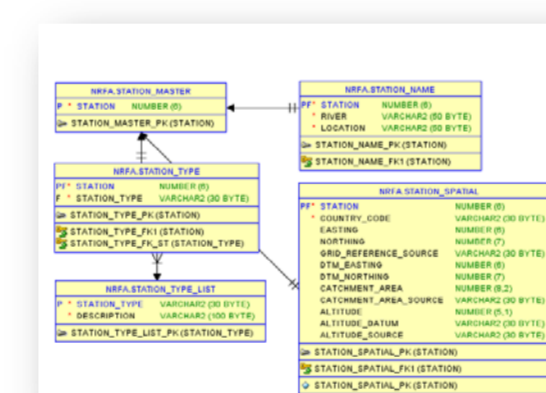
>89% of gauging station locations and >15% of catchment areas transferred from HiFlows-UK were updated.

Systems Integration

Front-end user systems such as the website (see box to the right) have been updated. However, the majority of the integration has involved extension and redesign of the archive's ORACLE database and associated tools.



Data search functionality on the NRFA website was updated.



Substantial extensions and redesigns of database systems were required.

WINFAP-FEH File Update

A minor update of downloadable WINFAP-FEH files were released in August 2014 (v.3.3.4) to reflect changes which had been made to the database, including metadata updates, rating corrections, additional catchment descriptor information and some flow data changes. However, the current peak flow time series and metadata remain largely as collated by the HiFlows-UK initiative.

Future Plans

The merger of HiFlows-UK metadata into the NRFA is ongoing. Harmonisation of station descriptions and other core information will take place in 2014-15. There are known problems in the time series data (e.g. due to rating alterations or erroneous peaks) which will take longer to resolve, but the NRFA appreciate notification of any issues users find.

Integration of peak flow data means that this national dataset will capitalise on future enhancements to NRFA data standards and provision. The NRFA and Measuring Authorities are looking at options for more regular updating of the Peak Flow dataset in future.

Questions

Ideas from the user community as to what enhancement would be useful are encouraged – please send these to the below email address. For example:

- What new data discovery or visualisation tools would help your analysis?
- What data formats or access methods would be useful?
- How and when do you want new versions of Peak Flow data to be available?



Flooding on the Six Mile Water in August 2008, looking downstream to the town of Antrim with Lough Neagh in the background (Photo: Rivers Agency)

Accessing National Peak Flow Data

The following peak flow time series and information can now be accessed via the NRFA website:

- AMAX and POT time series (inc. information on missing data)
- Ratings information
- Peak flow specific metadata and datum histories
- FEH catchment descriptors

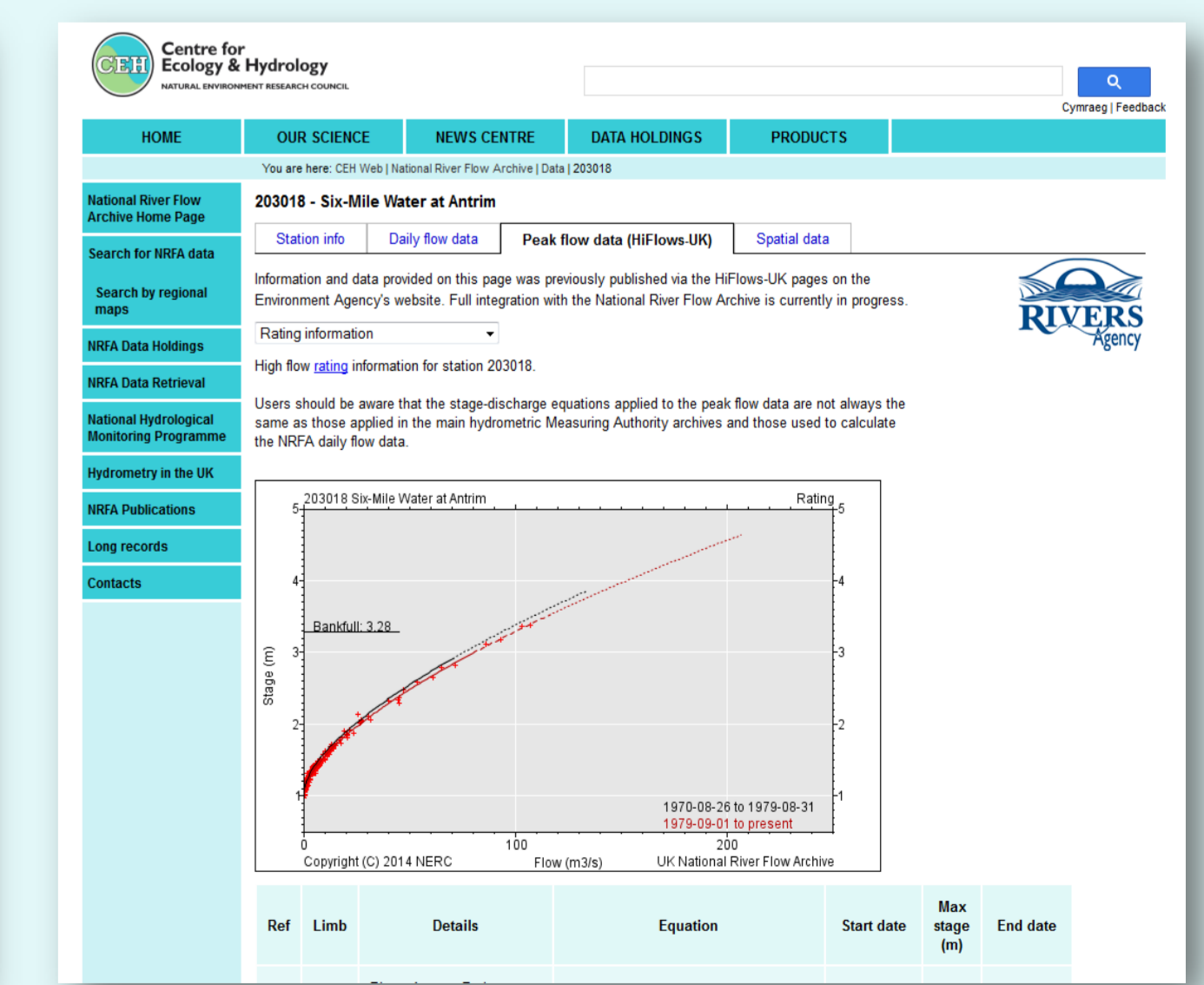
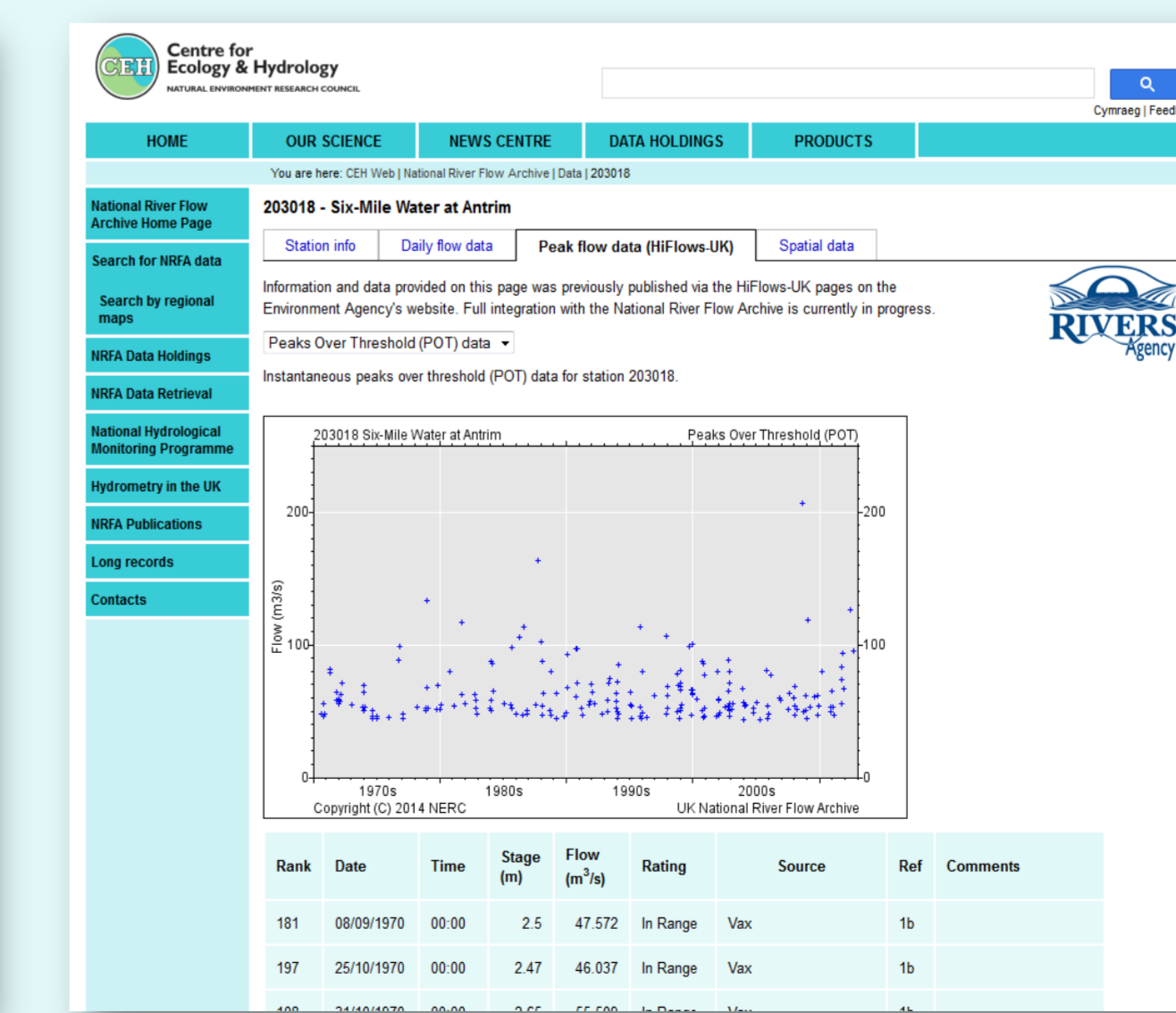
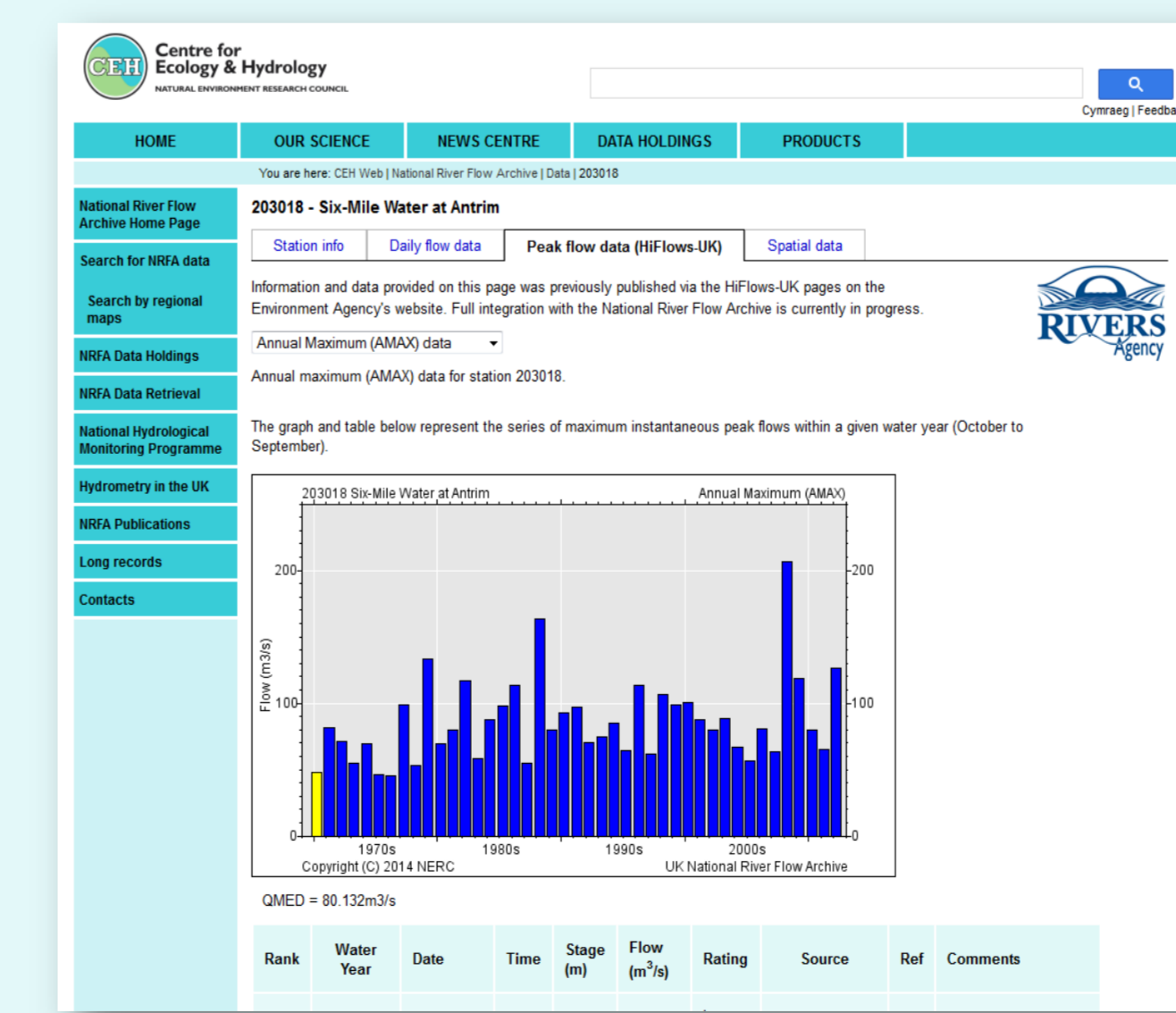
This new peak flow information is provided alongside existing NRFA data including:

- Daily /Monthly Mean Flow time series₁
- Pre-processed flow duration curves and summary statistics
- Monthly Catchment Rainfall Data_{1,2}
- Gauging station metadata (inc. station locations, types and descriptions)
- Catchment spatial data and stats (inc. downloadable catchment boundaries)

A range of dynamic web-pages allow users to search and view NRFA data holdings, download hydrographs and rating curves.

All peak flow time series and catchment descriptor information are available for download pre-formatted for use in WINFAP-FEH.

1. Available via download and/or helpdesk
2. Daily Catchment Rainfall Data expected to be released soon



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 http://www.ceh.ac.uk/data/nrfa

WHY: DOES THE UK NEED A NATIONAL RIVER FLOW ARCHIVE?

BECAUSE: ACCESS TO NATIONAL HYDROMETRIC DATA IS VITAL FOR EFFECTIVE WATER RESEARCH AND MANAGEMENT

