



Job Details

Reference:	11523
Position Title:	Hydrologist
Classification:	APS Level 6 (Professional Officer Class 2)
Salary range:	\$73,073 - \$83,081 per annum, plus an additional 15.4% superannuation
Location:	14 Childers Street, Canberra, ACT 2600
Division:	Climate and Water Division
Branch:	Water Forecasting Services
Section:	Extended Hydrological Prediction
Sub Section:	Prediction Systems
Status:	Ongoing
Applicants:	Australian Citizenship – see Eligibility Requirements
Applications close:	Thursday 26th January 2012

Advertisement

To secure the long term water supply of all Australians, the Australian Government announced Water for the Future, a \$12.9 billion water investment program in 2008. This includes \$450 million for the 'Improving Water Information Program' administered by the Bureau of Meteorology and backed by the Commonwealth Water Act 2007 and key stakeholders. The Bureau's expanded water information role is enhancing the quality and utility of Australia's water information by producing the National Water Account, water resource assessments and water availability forecasting services, supported by a national water monitoring and data collection network. These responsibilities add to the Bureau's existing responsibilities for flood forecasting and warnings. The program includes development and maintenance of an integrated, national water information system freely accessible to the public (see www.bom.gov.au/water).

Australian streamflows are among the most variable in the world. These streamflows are relied upon by a range of water managers and users, including irrigators, urban and rural water supply authorities, environmental managers and hydroelectricity generators. Predictions of future seasonal streamflows and long-term water availability forecasts can potentially allow these water managers and users to better plan and manage water use, to inform water allocation, environmental flow management and water trading decisions and to assist with development of water policies to ensure security of supply.

The Extended Hydrological Prediction section (EHP) has been established to develop seasonal and long term water availability and streamflow forecasting services. The seasonal streamflow forecasting service was launched in December 2010 and the service provides water availability forecasts at important locations in the Murray-Darling Basin (see www.bom.gov.au/water/ssf). The service will be extended to areas providing substantial inflows to major storages across Australia. This position will involve participating in the design and provision of water information and forecasting products in the Bureau's Climate and Water Division. The occupant will be involved in advanced hydrologic modeling tasks requiring quantitative hydrology skills for delivery of the water forecasting products that support seasonal and long-term water forecasting services of the Division. The focus of the position is on water information product development for the Prediction Systems Unit of the Extended Hydrological Prediction Section.

Duty Statement

Under professional supervision,

1. Provide inputs into modelling activities and strategies concerning the development and operation of extended hydrological prediction services to support the delivery of the Bureau's water forecasting services under the *Water Act 2007*.
2. Assist with planning and co-ordination of the operations of the Prediction Systems unit.
3. Participate in, or lead, the following activities and studies included within scope of the Bureau's seasonal and long-term forecasting products:
 - (a) Assist in developing and applying analytic tools for seasonal forecasting (particularly implementation of rainfall-runoff models and downscaling of climate data);
 - (b) Testing and evaluating performance of a range of hydrologic models under different hydro-climatic conditions of the Australian continent and evaluating accuracy and reliability of the hydrologic forecasts within an uncertainty framework;
 - (c) Performing quality assurance and consistency checks on all climate, hydrology and environment data required for hydrologic modelling for valleys where seasonal forecasting capability is currently under development;
 - (d) Establishing and compiling water balances under historical calibration, hindcasting and forecasting modes;
 - (e) Assist with specialist tasks for integration of climate data and products of the Bureau with hydrology products currently under development in the EHP section;
 - (f) Assist in developing and applying developed tools for long-term forecasting on a needs basis (particularly implementation of models that incorporate the combined effects of land use, climate variability and change); and
 - (g) Preparing reports and other information products for use by the Bureau and external clients.
4. Work collaboratively with other groups on joint tasks as required including the development and implementation of programs or software needed for water forecasting services.
5. Represent the Bureau and liaise with both internal and external stakeholders.
6. Carry out other duties within the Bureau's Water Division and undertake other duties relevant to supporting extended hydrological prediction services, as required.
7. Be aware of, and apply, the principles and practices of the various elements of the Bureau's Social Justice Strategy.

Duty representing highest function: 1 - 3

Immediate Supervisor: EXECUTIVE LEVEL 2 (SPOB) (NO. 10703)

Job Profile

The Climate and Water Division is a new division of the Bureau of Meteorology established to fulfil the Bureau's new functions in water information under the *Water for the Future* plan and to integrate these with the Bureau's existing hydrological services functions.

The Bureau's roles and responsibilities are provided under the *Water Act 2007*. The 12-part Water Act includes a Part (7) on water information, setting out a range of new powers for the Director of Meteorology. The powers are related to the collection of water information and national standards for water information collection, storage and transmission.

The legislation also sets out some obligations for the Bureau, including the requirements to provide periodic water forecasting services over seasonal and inter-decadal time scales and to make water information freely available to the public and operational water management agencies nationally.

Currently in Australia it is not possible to monitor the status of Australia's water resources because of the manner in which water information is managed across more than 100 different water data collecting agencies nationwide. This situation impedes effective water resources management and policy and decision making on infrastructure investments. An Australian Water Resources Information System (AWRIS) is being developed

that will deliver robust and reliable, nationwide information on water availability, water quality and water usage. It will be the authoritative repository for water data, forecasting and reporting in Australia.

The focus of the position is on water information product development for the Prediction Systems Unit of the Extended Hydrological Prediction Section. The goal of the Extended Hydrological Prediction Section (EHP) is to provide water availability predictions on timescales of weeks through to several decades ahead in order to inform water resource management and investment decisions. The Prediction Systems unit 'adopts, adapts or designs' the modelling capacity and related infrastructure to support development and implementation of the section's services. The work will include hydrologic modelling, analysis and forecasting of various aspects of surface water, groundwater, climate and land use impacts across Australia. The position will be based in the Canberra Office.

Selection Criteria

Applicants are required to address the selection criteria.

Responses to the selection criteria should be limited to a maximum of 500 words per criterion. For information on how to address the selection criteria refer to [A Guide On Addressing Selection Criteria For Applicants](#).

1. Demonstrated expertise and experience in hydrologic modelling, quantitative hydrology, and water forecasting; knowledge of predictive uncertainty and Bayesian modelling will be highly regarded.
2. Demonstrated experience in catchment hydrology modelling, including calibration, validation and forecast verification and quality assurance, and detailed understanding of the links between climate and hydrology processes.
3. Strong numerical data analysis and visualisation skills using R or Python; advanced backend programming skills using C#, Java or Fortran will be an advantage.
4. Experience in scientific hydrology demonstrated through presentation of technical material to the community of practice e.g. peer reviewed technical reports, conference and journal publications.
5. Demonstrated ability to work in a team environment and suitable personal attributes, including interpersonal skills, initiative and ability to communicate clearly and concisely, both orally and in writing.
6. Knowledge and understanding of the principles of the Bureau's Social Justice Policies and a commitment to apply them in practice.

Mandatory Requirement:

1. A degree or diploma of an Australian institution, or a comparable overseas qualification, which is appropriate to the duties; OR
2. Other comparable qualifications, which are appropriate to the duties.

Contact

If you would like to know more about the Bureau of Meteorology visit <http://www.bom.gov.au/>

Employment conditions for most Bureau employees are contained in [The Bureau of Meteorology Enterprise Agreement 2009–2011](#).

Please read the selection documentation and if you have any queries specific to this position please contact Narendra Tuteja on 02 6232 3518 or email n.tuteja@bom.gov.au.

How to Apply

Applications are to be lodged online through the Bureau of Meteorology [eRecruit system](#) by the closing date.

The eRecruit system is easy to use and will prompt you on how to register and apply for vacancies.

Prior to lodging your application online we recommend you:

- Read the position information contained in the Job Details document

- Have a current resume which details relevant employment experience, skills and qualifications
- Prepare a statement specifically addressing the Selection Criteria for the position

When applying online:

- Please respond to all the online questions, complete your responses to the selection criteria and upload a copy of your resume.
- Regularly click save during the online process to ensure your application is saved. If there is no activity for a set period of time the online application process will time out and automatically disconnect you.
- We recommend you prepare your answers to the criteria in a word document then copy and paste your responses into the eRecruit system.
- Your resume should be in a Word or PDF format.

For further information on our recruitment process and how to apply refer to our careers website <http://www.bom.gov.au/careers/>.

Should you experience any difficulties with accessing the eRecruit system and applying online, please contact the Recruitment Unit by email: jobs@bom.gov.au or phone 03 9669 4401.