Australian Government
Bureau of Meteorology

Water Information
DATA › INFORMATION › INSIGHT

Job Details

Reference:	**11353**
Position Title:	**Model Developer and Systems Architect**
Classification:	**Executive Level 1 (Senior Information Technology Officer Grade C)**
Salary range:	**$88,966 - $100,212 per annum, plus an additional 15.4% superannuation**
Location:	**14 Childers Street, Canberra, ACT 2600** **Canberra preferred, other capital cities will be considered**
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** **-** Whilst Australian citizenship is not a mandatory requirement, the successful applicant will need to have the necessary visa and work rights. - Non Australian citizens will only be considered if there are no suitable Australian candidates.
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.

The Model Developer and Systems Architect is an important member of the EHP team complementing our existing skills in modelling, systems development and forecasting services. The person will be responsible for designing, developing and bringing into operations hydrologic modelling systems and tools. This will involve writing functional and systems specifications, technology selection, which requires very high level of expertise

in programming and operationalising scientific modelling systems.

We are seeking an experienced and motivated professional who will enjoy working in a close and dynamic team environment to deliver practical environmental services benefiting Australia.

Duty Statement

Under broad direction,

1. Establish and maintain an understanding of the Climate and Water Division's Extended Hydrological Prediction (EHP) section's information and forecasting system needs, existing systems and plans for development.

2. Plan, develop and deploy EHP modelling systems and protocols to support efficient work processes within EHP, the Climate and Water Division and the Bureau.

3. Substantial hands on software development as well as taking on lead-role in software development within the sub-section/ section as required for EHP modelling systems and water forecasting services.

4. Develop and maintain EHP modelling systems and computational infrastructure that support the promotion, distribution, application and technical support of the EHP water forecasting products and services.

5. Provide support to the Manager, Prediction Systems Unit in the provision of advice to section head on EHP modelling and computing system management and development strategies.

6. Maintain standards in software engineering and development processes for complex scientific applications. Identify training needs in IT systems, scientific programming and applications for staff members in the section. Write training modules and lead training workshops on operational modelling systems and in-house developed subsystems.

7. Ensure that policies, principles and practices in relation to all elements of the Bureau's Social Justice Strategy are applied in the work area.

Duties representing highest function: 1-4
Immediate Supervisor: Manager, Prediction Systems Unit- PN 10703 (EL2 (Lower))

Job Profile

Our Model Developer and Systems Architect will lead and implement EHP modelling systems and IT solutions to achieve the Bureau's Water Forecasting Service goals. The position is a part of a highly motivated team sharing responsibility for developing and delivering seasonal and long term water availability forecasting services that will contribute to improved land and water management nationally. The position will make a significant contribution to the Bureau by developing our robust, extendible, and user-friendly hydrologic modelling systems to support water forecasting services.

Responsibilities include:

- designing, developing and maintaining the Extended Hydrological Prediction section (EHP) statistical and dynamic seasonal forecasting system including hydrologic modelling, verification and product generation system
- designing, developing, and implementing the complex and operational platform independent modelling systems in the scientific environment using Python, R and other software programming languages e.g. C# and Fortran
- establishing databases and other IT systems to support delivery of the Water Forecasting Services, including the Seasonal Streamflow Forecasting service, Short Term Forecasting service and Long Term Prediction service
- working with specialist colleagues across areas of hydrologic modelling, database integration and design, software engineering and web design
- contributing to the development and delivery of the seasonal short term and long term water availability forecasts, and web portals for High Quality Streamflow Reference Stations (see http://www.bom.gov.au/water/ssf) including integration of water forecasting services
- contributing to development and maintenance of the Water Division's Sharepoint and intranet sites
- developing business systems and robust applications that promote interaction and collaboration

between EHP team members located in head and state offices.

The successful applicant will be highly motivated to lead, develop and apply skills and knowledge across a range of IT systems and skilled in identifying opportunities for efficient use of IT to support our work. The position will suit an individual with strong technical skills, and communication and people skills who wants to work as part of a close, multi-disciplinary team and develop a breadth of knowledge to underpin the next step in their career.

Applicants will appreciate the benefits of a dynamic, team-based culture and the challenges and rewards associated with contributing to the development and delivery of a new national program to transform Australia's water resources information.

The position requires a strong team approach to working with other members of the EHP and regular liaison with a range of other Climate and Water Division staff and other IT, hydrology and climate groups within the Bureau and researchers from CSIRO and the university sector for operationalising research systems into operational water forecasting systems.

The successful applicant will have previous experience in a similar role in systems or software engineering working with multiple tools and technologies across varied environments. It would be desirable for the successful applicant to have an appreciation of the Australian water industry but this is not essential. Some interstate travel may be required.

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 design, development and implementation of the operational modelling systems, preferably for scientific or engineering purpose, using Python and/or R and hands-on experience and expertise in one or more of C#, Java or C++ programming languages.

2. Demonstrated capabilities and experience in generating, storing, analysing and visualising large scientific data sets (e.g. HDF or NetCDF), preferably for water resource forecast or management purpose.

3. Demonstrated proficiency and skills in the agile software development methodology e.g. rapid prototyping and testing of complex and computationally intensive scientific algorithms. Proven experience in end-to-end modelling related service delivery systems in water industry is an advantage.

4. Demonstrated proficiency in the use and management of a broad range of operating systems including Unix and variants, and Microsoft Windows Server in high performance computing environment. Experience with virtual computing environments would be an advantage.

5. Sound liaison and communication skills (oral and written), demonstrated project management skills, strong interpersonal skills with the ability to develop and maintain productive relationships within a highly skilled team environment and the capacity to produce planning documents and systems documentation.

6. Knowledge of the Bureau's Social Justice Strategy and a commitment to ensure its implementation in the work place.

Mandatory Requirement:

1. An Associate Diploma or Certificate IV in Information Technology or higher; OR
2. A relevant industry certification ie. Cisco Certified Network Associate (CCNA), Microsoft Certified Engineer (MSCE) or Red Hat Certified Engineer (RHCE); OR
3. Relevant experience and training which enables the employee to competently perform the duties at this level.

Desirable qualifications:

1. A degree or diploma in software engineering, computer science, systems engineering or information technology and experience in water and climate industry will be an advantage.

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 Ph: 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.