

**National Collaborative Research Infrastructure Strategy  
Platforms for Collaboration  
Australian National Data Service**

**Capacity Assessment Exercise**

**Introduction**

The Bureau operates as a single integrated national research and service organisation, serving the needs and meeting the responsibilities of Australia.

Data underpins much of what the Bureau does. It is the foundation from which the Bureau is able to provide its wide variety of services. The Bureau has some 57 manned stations in Australia, offshore islands and Antarctica. 50 of these stations provide upper air information through launching high altitude balloons between 1 and 4 times daily. The Bureau has over 500 automatic weather stations reporting from every minute to half-hourly to hourly, and another 450 co-operative observers who report every 3 hours to daily. There are over 7000 rainfall stations and over 130 drifting marine buoys. Our flood warning network includes some 700 river height sites and we have around 90 voluntary observing ships in Australian and adjacent waters. Approximately 40 aircraft have meteorological sensing equipment, which is automatically transmitted to the Bureau. In addition to the above the Bureau receives and processes satellite data from geostationary and polar orbiting satellites.

In total the Bureau generates approximately 1 terabyte of new data each day from observational data, satellite data, radar data and numerical weather prediction models.

The Bureau deploys a vast array of ICTs in the course of its operations, and faces the constant challenge to be a leading user of ICT and a manager and provider of data. The Bureau has developed extensive skills in real time data management and in service provision. For example, the Bureau's website accounts for 60% of the entire Australian Government's web traffic volume and the public downloads over 150 terabytes of data annually.

The Bureau has formed close links, and works collaboratively, with other research agencies such as CSIRO, universities and Defence, as well as with international organizations, such as WMO. The Bureau is continuing its role in high performance computing with the upgrade of its supercomputer in 2008 and a 5-10 petabyte-scale large scale data storage systems (2007). The Bureau's future vision includes a state-of-the-art Climate and Earth System Simulator (ACCESS) and participation in a comprehensive environmental data network. In addition, the Bureau is accommodating the Ionospheric Prediction Service (Space-weather) and (subject to agreement) the Water Information initiative of the National Plan for Water Security. The formation of a Centre for Australian Weather and Climate Research (CAWCR) with CSIRO will create a unique scientific capability in the areas of weather, climate, ocean prediction and earth systems science.

Given its current research and operational roles, experience in data management and provision of real-time services, existing and planned extensive ICT infrastructure, and its future direction, the Bureau believes it can contribute positively to ANDS.

### *Federated Services*

The Bureau wishes to play an active and central role in the initial support services and future layers as they are added. It is interested in common data analysis and visualization services, generic data quality assurance services, notification and data curation services, and the common data submission and presentation services. The Bureau has extensive experience and capability in the development and application of data standards. The Bureau could be a major node for NCRIS, including for the registration, location and access services. The Bureau is already positioned to undertake some of these roles with its BlueNet and BlueLink projects. The Bureau of Meteorology is in the business of data services as part of its national obligations and is interested in partnerships and other forms of collaboration that could build on (and with) such infrastructure.

### *Outreach Services*

The Bureau could also play a role in outreach services. The Bureau's niche is in communication with other government and non-government data initiatives, especially with regard to meteorology, water, numerical model output, imagery and weather, climate, hydrological and oceanographic research. The Bureau also could provide advice on mass storage, data curation, quality control and archives.

### *Stewardship Services*

The Bureau currently supports the continuity of access to a significant collection of data, which it makes available to the public, to other government and non-government organizations, as well as internationally. The Bureau is well placed to scale this service as required, particularly in relation to broader research access and dynamic infrastructure.