

History of WASTAC

Initial history by Alan Pearce (CSIRO), Brendon McAtee and Robert Shaw (Landgate) circa 2004.

Update of history for 2005 to 2018 by Mike Steber (Landgate).

It was over 40 years ago that CSIRO and the Western Australian Institute of Technology (WAIT; now Curtin University of Technology) signed an historic agreement to establish a NOAA satellite receiving station on the WAIT campus. It took another 2 years for the installation of the first receiving dish on the roof of the Electrical Engineering building.

Since then, the satellite data from that facility and its successors was increasingly used for agricultural, marine and atmospheric applications such as fire and flood monitoring, weather forecasting, vegetation indices and sea-surface temperatures for the fishing industry. WASTAC deserved its enviable record in the acquisition, archiving and distribution of locally-received satellite remote sensing products, and there is now an archive of over 250,000 passes from NOAA-AVHRR, SeaWiFS, MODIS and SNPP VIIRS. Four phases can be identified in the life of WASTAC and these notes highlight the major milestones along the way.

1) Pre-WASTAC beginnings: The pioneers (1979 to 1986)

- 1979: Initial agreement between CSIRO (Dr. Frank Honey) and WAIT (Dr. Bill Carroll) to establish a NOAA satellite receiving station.
- May 1981: First manually-operated receiving facility established at WAIT as a joint CSIRO/WAIT project.
- August 1981: First NOAA-6 and NOAA-7 passes archived (partial pixels on every second line), using 9-track 6250 bpi magnetic tapes.
- June 1983: First full passes with every pixel of every line received.
- 1985: Early discussions between CSIRO, WA State Government agencies, Bureau of Meteorology and Curtin University on establishing an upgraded reception facility to provide operational remote sensing data on a regular basis. This led directly to the establishment of WASTAC, under the chairmanship of Henry Houghton of the Department of Land Administration (DOLA; now Landgate).

2) Establishment and growth of WASTAC: New deed, new dish, new partners (1987 to 2000)

- July 1987: Upgraded automatic L-band reception facilities at WAIT officially commissioned by the Hon. Barry Jones (Federal Minister for Science) and the Hon. Keith Wilson (State Minister for Housing and Lands).
- September 1987: First satellite pass using the new WASTAC reception facilities. While the antenna and controller were retained at Curtin University, the data were relayed in real-time via analogue microwave link for ingest into a Dual computer system at the Bureau of Meteorology offices in Wellington Street (Perth); data archiving and distribution were undertaken by DOLA at Jardine House in the city.

- January 1989: First WASTAC deed signed by the Bureau of Meteorology, CSIRO, Curtin University (ex- WAIT) and the Department of Land Administration (DOLA), with the stated objectives:
to acquire operate and maintain the facility;
to maintain an archive of remotely sensed data acquired by the Facility from satellites of the National Oceanic and Atmospheric Administration (hereinafter called "NOAA");
to provide remotely sensed data for the day-to-day operational requirements of the Bureau;
to provide facilities and remotely sensed data for the parties here to conduct research and development projects from time to time;
to provide in accordance with the provisions of this Deed remotely sensed data to members of the Consortium for their own requirements or purposes or for supply by them to those to whom they may be responsible or for sale by them to their respective customers or clients as the case may be on terms and conditions determined by the Board.
- December 1989: First formal WASTAC Annual Report published.
- January 1993: The Leeuwin Centre for Earth Sensing Technologies opened, providing accommodation for the remote sensing sections of DOLA, CSIRO, Curtin University, TAFE and some commercial clients.
- March 1995: WASTAC deed renewed for second 5-year period. This included a re-structure of the WASTAC Board of Management to meet twice a year separately from the ongoing Standing Committee.
- December 1995: Henry Houghton retired as inaugural Chairman of WASTAC and was replaced by Richard Smith (DOLA).
- September 1996: Upgrade to the ingest facility with HP workstations replacing the IBM PS/2 system, and a high speed microwave link established for transferring satellite data directly to the Leeuwin Centre.
- December 1996: The WASTAC receiver assisted in the rescue of a stricken yachtsman in the Southern Ocean.
- 1997: WASTAC Strategic Plan prepared, with the vision "Improve the economy, society and environment through the acquisition of satellite observations of Western Australia and its oceans for research and near real-time applications".
- March 1997: WASTAC "quicklook" facility for AVHRR passes established on the World Wide Web.
- October 1997: First SeaWiFS pass received by WASTAC.
- April 2001: Implementation of CAPS software into the WASTAC/DOLA processing stream.

3) X-band expansion: A new generation of satellites (2001 to 2015)

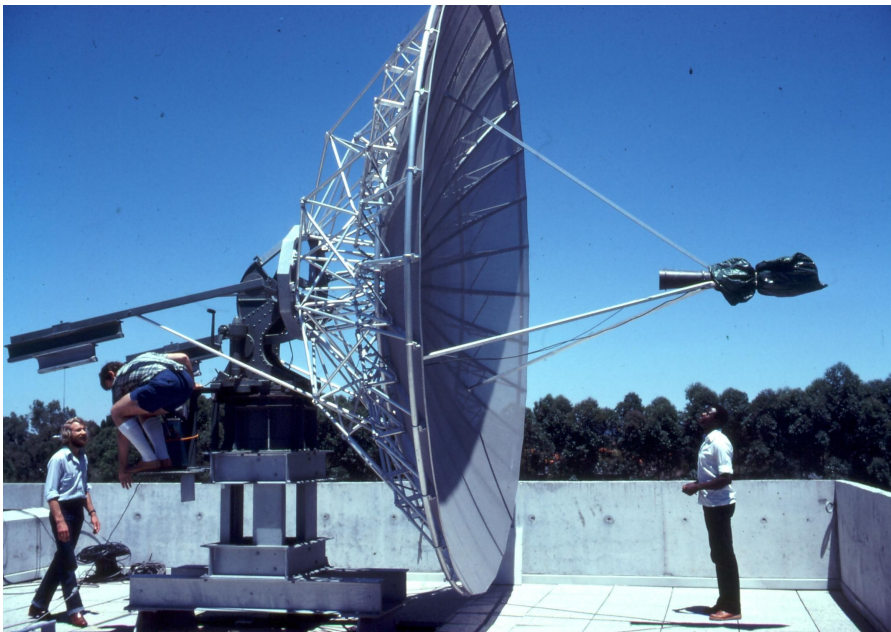
- August 2001: Expanded WASTAC-X consortium formed by the Bureau of Meteorology, CSIRO, Curtin University, DOLA, Geosciences Australia and Murdoch University.
- September 2001: New X-band facility (with a 3.6 m radomed autotracking antenna) installed at Murdoch University to receive MODIS data; the facility was officially commissioned in November.
- September 2001: First MODIS/TERRA pass received and archived.
- September 2001: WASTAC website established: www.wastac.wa.gov.au.
- November 2001: The digital microwave link was upgraded from 2 to 4 Mbits/sec.

- July 2002: First MODIS/AQUA pass received and archived.
- November 2002: Three MODIS development working groups established for atmosphere, land and ocean.
- June 2004: WASTAC-X deed signed by the 6 Consortium partners.
- August 2005: L-band upgrade to the Murdoch antenna, allowing reception of NOAA/AVHRR, SeaWiFS and FY-1D.
- March 2008: Richard Smith retired as Chairman of WASTAC and was replaced by Mervyn Lynch (Curtin).
- July 2009: X-band upgrade to the Murdoch antenna, allowing reception of MetOp, SNPP and FY-3A.
- 2011: Installed a microwave link from the Murdoch site to the Bureau of Meteorology's Perth offices via Curtin University as a business continuity measure.
- February 2011: Mervyn Lynch retired as Chairman of WASTAC and was replaced by Matthew Adams (Landgate).
- March 2012: First SNPP and MetOp-A passes received.
- April 2012: First FY-3B pass received.
- October 2012: First MetOp-B pass received.
- April 2015: First FY-3C pass received.

4) Winding Up

- February 2016: L-band antenna at Curtin University critically fails.
- August 2016: WASTAC Board holds Strategic Workshop to discuss WASTAC's future in the current policy and operational environment.
- November 2016: WASTAC Board decides to wind up WASTAC by the end of 2018.
- January 2017: The Australian National Ground Segment Technical Team (ANGSTT) replaces the WASTAC Technical Committee.
- December 2017: L-band facility dismantled and donated to the Australian Space Academy.
- December 2018: Landgate purchases the Murdoch antenna from the other partners within WASTAC.

The success of WASTAC over the past 4 decades may be summed up in simple terms: "competence and cooperation" - the high level of competence of the individuals comprising the WASTAC Standing Committee and Board, and the encouraging degree of co-operation between the participating organisations. These hallmarks ensured that WASTAC met the challenges of new satellite sensors and new marine, terrestrial and atmospheric applications.



The first NOAA receiving dish at Curtin University, c.1982.
WASTAC BOARD FOR 1991



(L-R) Mr Don Ward, Bureau of Meteorology; Dr Richard Smith, CSIRO; Dr Doug Myers, Curtin University of Technology; Mr Henry Houghton (Chairman), Department of Land Administration; Mr Alan Pearce, CSIRO; Mr Richard Stovold (Secretary), Department of Land Administration; Assoc. Prof. Merv Lynch, Curtin University of Technology; Mr L Broadbridge (absent), Bureau of Meteorology.