

# Aurora Australis JGOFS Cruises in the Southern Ocean DATA DOCUMENTATION

Cruises AU 9101, AU9303, AU 9404, AU9407, AU9501, AU 9604, and AU 9706

## [1] General:

**Parameter:** Ammonia (NH<sub>3</sub> and NH<sub>4</sub>) determined on Cruise AU 9706.  
Level 1: Yes  
**Principal Investigator:** Ros Watson  
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**List of Parameters:** Ammonia measurements (NH<sub>3</sub> and NH<sub>4</sub>)

**List of Units:** nM

## [2] Sampling:

**Gear (e.g. CTD, pump, etc.):** CTD; 10 litre niskin bottles  
**Standard Depths:** Hydrochemistry depths: see Hydrochemistry data  
**Chemicals used:**  
**Special Procedures:**  
**Comments and Notes:** Samples were either analysed fresh or frozen to -40°C for later analysis.

## [3] Analysis:

**Instrument:**

**Precision:** Data are means of replicate determinations (n=2 or n=3).  
**Comments**

## [4] Results:

**Quality of Data** Good.

**Known Problems:**

## [5] Brief description of analytical methods

**Method:** Ammonia was analysed using a FIA technique (Watson *et al* (in prep.)) modified from a method by Jones (1991). The

method involves the manual injection of 1ml samples into the system. The sample pH is increased allowing the ammonia to be extracted from the sample through a gas diffusion unit at 70°C. The ammonia was then reacted with ortho-phthaldialdehyde and sodium sulphite and measured using a GBC LC1250 fluorescence detector. Peak heights were measured manually using a Yew 6032 chart recorder.

**References:**

- Jones, R. D. (1991) An improved fluorescence method for the determination of nanomolar concentrations of ammonium in natural waters. *Limnol. Oceanogr.*; 36:814-819.
- Watson, R. J.; Butler, E. C. V.; Clementson, L. A. and Berry, K. M. (in prep) Flow analysis with fluorescence detection for the determination of trace levels of ammonia in seawater.

**[6] Comments:**

Ammonia analyses are only available for cruise AU9706.