

**Title:** University of Wyoming King Air (UWKA) Low-Rate Flight Level Data from the 2021 Transport and Transformation of Ammonia (TRANS<sup>2</sup>Am) Project

**Authors:**

- Jeffrey French, University of Wyoming, UWKA Facility Manager, jfrench@uwyo.edu, 1000 E University Ave, Laramie, WY 82081. ORCID: 0000-0003-1993-0585.
- Larry Oolman, University of Wyoming, Senior Research Scientist, loolman@uwyo.edu, 1000 E University Ave, Laramie, WY 82071, ORCID: 0000-0002-6322-009X.
- David Plummer, University of Wyoming, Research Scientist, dplumme1@uwyo.edu, 1000 E University Ave, Laramie, WY 82071, ORCID: 0000-0002-2329-0552.

**Description:**

The Transport and Transformation of Ammonia (TRANS<sup>2</sup>Am) campaign was focused on sampling emissions (primarily methane, ethane, and ammonia) associated with intensive animal farming operations in Colorado. This dataset contains the navigation and state parameter data measured by the UWKA during the research phase of TRANS<sup>2</sup>Am in August 2021. Additionally, data from the final test flight on 27 July 2021 are included, as this flight followed a standard research flight profile with the standard instrument payload largely operational.

- Version: 1.0 (2023-02-25) processing release tag trans2am21\_qc1
- Status: Final
- Time period: 2021-07-27 18:33 to 2021-08-24 22:10
- Physical location: 40.0 to 41.4 degrees North latitude, -105.8 to -102.4 degrees East longitude
- Data frequency: 1 Hz
- Project web site: <http://flights.uwyo.edu/projects/trans2am21/>
- Data restrictions: none

**Instruments:**

- Aircraft position and attitude - Applanix AV-410
- Static Pressure - Rosemount HADS, Weston, CPT-6140, CPT-9000
- Air Temperature - Reverse Flow, Rosemount 102
- Air Flow - Rosemount 0858

- Water Vapor - Edgetech Vigilant 137
- Radar Altitude - King KRA 405B
- Cabin Pressure - Rosemount 1332
- Aerosol Sizes - PCASP SPP-100

**Data Format:**

- NCAR-RAF netCDF Conventions: <https://archive.eol.ucar.edu/raf/software/netCDF.html>

**Remarks:**

- Summary of each flight including instrument issues:  
<http://flights.uwyo.edu/projects/trans2am21/>

The project consisted of 14 research flights, including 1 pair of flights taking place on the same local day as each other. Flight numbers are included in the file metadata, with separate flight numbers given to the pair of flights occurring on the same day. Files are named by UTC date, as *YYYYMMDD.cX.nc*, where *X* corresponds to the processed data rate in Hz.

**GCMD Keywords:**

Atmosphere, Aerosols, Aerosol Particle Properties, Air Quality, Emissions, Altitude, Barometric Altitude, Atmospheric Chemistry, Atmospheric Pressure, Static Pressure, Atmospheric Temperature, Upper Air Temperature, Atmospheric Water Vapor, Dew Point Temperature, Humidity, Atmospheric Winds, Upper Level Winds, Flight Level Winds

**Primary Contact Information:**

- UWKA Project Management: [atsc-kapm@uwyo.edu](mailto:atsc-kapm@uwyo.edu)