

## Meteorological soundings during the FINNARP-95/96 expedition in the Weddell Sea

This file describes the meteorological soundings onboard R/V Aranda during the FINNARP-95/96 expedition in the Weddell Sea. The dataset has been described in the Technical report FINNARP Air-Sea-Ice Interaction Experiment in the Weddell Sea in 1996-1997 (Vihma et al. 1997). Here, we publish the data from 78 soundings and 6 summary files (3 for January and February each).

The different files are listed in the table 1.

File type	Example of a file name	Description
Sounding data	96012611.54A	<p>The file names indicate the year, month, day and time (YYMMDDHH.MM) of the sounding, and the suffix A. The headerline in each sounding file indicates the details of the sounding: sounding station information, location and time.</p> <p>The data columns in the files are:</p> <ol style="list-style-type: none"> <li>1. time(s)</li> <li>2. elevation(m)</li> <li>3. pressure(<math>10^1</math>Pa)</li> <li>4. temperature(<math>10^1</math>°C)</li> <li>5. relative humidity(%)</li> <li>6. dew point(<math>10^1</math>°C)</li> <li>7. wind direction(°)</li> <li>8. wind speed(<math>10^1</math>ms<sup>-1</sup>)</li> </ol>
List of soundings in one month	9601CAT.A	The summary files 9601CAT.A and 9602CAT.A present the list of soundings in January and February, respectively. The first 4 columns in the files indicate the time of the sounding, maximum height, latitude, and longitude.
Monthly statistics of the soundings	9601STAT.A	A report of the monthly statistics: mean, maximum and minimum values at standard levels.
Values at standard levels	9601STDF.A	<p>Values at standard pressure levels from each sounding of the month. The columns (except for the sounding dates) are</p> <ol style="list-style-type: none"> <li>1. time(s)</li> <li>2. elevation (m)</li> <li>3. pressure (hPa)</li> <li>4. temperature (°C)</li> </ol>

		5. relative_humidity(%) 6. dew point(°C) 7. wind direction(°) , note that zero is pointing south 8. wind speed (m/s) 9. wind speed West-East (m/s) 10. wind speed South-North (m/s)
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Table 1: Description of the files.

The following paragraphs contain a copy of the relevant information on the meteorological soundings as described in Section 3 of the report (Vihma et al., 1997).

*“The soundings were carried out at the with Vaisala RS80-15N and RS80-15G radiosondes which measure the air pressure, temperature and relative humidity. The radiosonde data were collected and evaluated by the Vaisala DigiCora MW 11 Automatic Rawinsonde Set, which calculates the wind vector using the sonde’s radio signal and Omega navigation system (sonde RS80-15N) or differential GPS concept (sonde RS-80-15G). 100G weather balloons were used (Totex TA100), filled with helium.*

*The soundings were usually made at the synoptic hours and a sonde was tracked for 90 minutes, although in some cases an installation of the sonde on a helicopter delayed or prevented the routine soundings. The ordinary soundings were carried out from the rear deck of the vessel (66 cases) or from sea ice (3 cases). In 12 soundings the sonde was installed on a helicopter for horizontal transects, and one sounding from the fast sea-ice was started as a tethered sounding, but the sonde was finally released. Of the 69 ordinary soundings, 47 fully succeeded and PTU-measuring (pressure, temperature and humidity) succeeded in 64 cases. In 38 soundings the wind was computed with the aid of the GPS. Sounding locations are presented in Figure 13 [not shown here]. The sounding campaign was started after the vessel crossed the Antarctic Circle and the first eight soundings were made over the open ocean. The next 49 soundings were made during the pack ice station over the marginal ice zone (MIZ), and then six soundings were made over the open ocean on the way to the shelf edge. The rest of the soundings (18) were made over the shelf edge region, except one, which was launched over the open ocean. [...]”*

## References:

Vihma, T., Launiainen, J., Uotila, P., and Kotro, A. (1997): FINNARP Air-Sea-Ice Interaction Experiment in the Weddell Sea in 1996-1997, Antarctic Reports of Finland, Report No 7, Ministry of Trade and Industry, Helsinki, Finland. ISBN 951-739-329-6; ISSN 0789-9262.