



Figure 4: Bars (left-hand scale): Numbers of logbooks received at the Norwegian Meteorological Institute (DNMI) each year 1867-1899 (source: DNMI Yearbooks, 1867-1899). The number for 1867 is approximate, numbers for 1868-1869 were not available, and those for 1884, 1885, 1890, 1895, and 1899 may include receipts from the previous year (e.g., 1884 represents 1883/1884). Curve (right-hand scale): Numbers of digitized observational records per year (the left- and right-hand scales are aligned to reflect the assumption that each logbook contains about 1,000 observational records).

4. Future plans

At present, no economic resources are available at AmS to complete keying, although we plan to contact DNMI about possible future support for the project or explore other options to key the balance of the undigitized logbooks (436 logbooks; approximately 400K reports). Provided sufficient resources can be obtained to support the very complex conversion activities that will be required, as discussed in sec. 3, we hope to incorporate the digitized portion (about 1/3) of the Collection into COADS as part of a complete update, Release 2, scheduled for availability in the year 2000 (Woodruff et al., 1998).

5. Acknowledgments

Past funding was received from the Norwegian Research Council that helped initiate the digitization effort at AmS. The DNMI was helpful with technical and professional assistance. The NOAA portion of COADS is currently supported by the NOAA Climate and Global Change (C&GC) Program and the NOAA Environmental Services Data and Information Management (ESDIM) Program. We are grateful to J. Elms for initial design efforts on the keying format, to R. Jenne and S. Worley for NCAR's contributions in support of the project, and to U. Radok for the translation included in this paper of the half (0-6) Beaufort scale.

References

- Elms, J.D., Woodruff, S.D., Worley, S.J., and Hanson, C., 1993: Digitizing Historical Records for the Comprehensive Ocean-Atmosphere Data Set (COADS). *Earth System Monitor*, 4; No. 2, 4-10.
- Maury, M.F., 1854: Maritime Conference held at Brussels for devising a uniform system of meteorological observations at sea, August and September, 1853. *Explanations and Sailing Directions to Accompany the Wind and Current Charts*, 6th Ed., Washington, D.C., pp. 54-88.
- London Times, 1990: *Times Atlas of the World*, Comprehensive Edition, Times Books, London.
- Wishman, E.H., 1995: Digitizing Norwegian logbooks 1867-1899: A final round to reach the objectives of the international conference of 1853 in Brussels on obtaining meteorological data from the ocean. In Pirkko Heikinheimo (Ed.): *International Conference on Past, Present and Future Climate: Proceedings of the SILMU conference held in Helsinki, Finland 22-25 August 1995*. Publications of the Academy of Finland 6/95.
- Woodruff, S.D., Diaz, H.F., Elms, J.D., and Worley, S.J., 1998: COADS Release 2 Data and Metadata Enhancements for Improvements of Marine Surface Flux Fields. *Physics and Chemistry of the Earth*, 23, 517, 527