

EDITORIAL

**🔗 The 150th Anniversary of the Leipzig Meteorological Conference:
Standardizing Observations and Analysis Methods**

All this year, *Monthly Weather Review* is celebrating its 150-yr history with a series of editorials showcasing its role in meteorological history. [Schultz and Potter \(2022\)](#) described the origins of *Monthly Weather Review*, which led to its first issue in January 1873. But the late 1800s were a transformative period for meteorology more generally, not only in the United States, but in Europe as well. Also celebrating its 150th anniversary this year is the Leipzig Meteorological Conference on 14–16 August 1872, which brought scientists from across Europe to debate and formulate policies on data collection and dissemination to advance the science and forecasting of meteorology. August's editorial briefly discusses the importance of the Leipzig conference, a story that is told in greater detail by [Börngen and Foken \(2022\)](#).

By the second half of the nineteenth century, many meteorological measuring instruments had become extremely reliable and accurate and could be used to record continuous measurements (e.g., [Foken 2021](#)). In addition, the development of telegraphy made it possible for weather observations taken from such instruments to be immediately sent to other locations to facilitate weather forecasts. However, standards in measurements, instruments, collection, and reporting were needed to ensure consistency across large geographical areas, and international agreements for data sharing and cooperation were needed. At the suggestion of U.S. Naval officer Matthew F. Maury and led by Director of the Brussels Observatory Lambert Quetelet, the first such international meeting, the 1853 Conference on Maritime Meteorology, was held to agree on international cooperation for collection of observations over the oceans ([Ashford 1953](#); [Moore 2016](#)). The meeting was held in Brussels, Belgium, and was attended by representatives from nine countries.

It took nearly 20 years for a similar, more extensive, conference to discuss land-based observations. This conference would be held in Leipzig, Germany, on 14–16 August 1872 and was led by Prof. Christoph H. D. Buys-Ballot, Director of the Royal Dutch Meteorological Institute ([Buys Ballot 1872](#)), and the three inviters: Prof. Christian C. Bruhns, Director of the Leipzig Observatory; Prof. Heinrich von Wild, Director of the Main Physical Observatory St. Petersburg in Russia; and Prof. Carl Jelinek, Director of the Central Institution for Meteorology and Earth Magnetism in Vienna, Austria.

In total, 52 participants from 9 countries attended. Instead of an agenda, the invitation included a set of 26 questions ([Bruhns et al. 1872](#); [Meteorological Committee 1873](#)). The time available for the meeting during the 3 days in August 1872 was limited, so some of the questions had to be discussed in smaller groups to ensure that all were covered by the end of the meeting. Seventeen questions dealt with definitions of uniform units of measurement or conversions and with questions of instrumentation and evaluation technology (e.g., should aneroid barometers be used in addition to mercury barometers, should psychrometers or hair hygrometers be given preference in moisture measurement, and in which unit should wind speed be indicated). Other questions concerned times of observations and calculation methods (e.g., how to calculate the mean wind direction). Also to be discussed was to what extent observation data should be exchanged, both by telegraphy and in printed form ([Anonymous 1872](#)). The 26 questions, translated into English, are included in appendix 1 to [Börngen and Foken \(2022\)](#), as well as in [Meteorological Committee \(1873\)](#).

The sole American attendee to this conference—in fact the only non-European participant—was listed as “Dr. E. H. Sell, New York.” We believe that this person is Dr. Edward Herman Miller Sell, who was a prominent physician in New York but lived in Europe around this time. In Vienna in 1872 he received the degree of Master of Obstetrics ([Chamberlain 1903](#), 92–93). It is not surprising that Dr. Sell was in Leipzig, because he took part in the celebrations of the 50th anniversary of the founding of the Society of German Natural Scientists and Physicians (of which he was a member), founded in Leipzig in 1822. Although he appears to have published no papers on meteorology and did not appear to be active in meteorological research or study its impact on human health, at that time (as well as today) there were physicians with an interest in meteorology. However, we have no record that he participated in the discussion at the Leipzig conference.

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Because the Leipzig Meteorological Conference was purely a scientific conference, no binding international agreements could be made. However, the questions were worked on to such an extent that they served as proposals for a meteorological congress in 1873 at which such agreements could be brokered. The First International Meteorological Congress during the World's Fair in Vienna on 2–16 September 1873 was also the founding congress of the International Meteorological Organization (today's World Meteorological Organization) and was chaired by Buys-Ballot. In his opening speech as host, Jelinek paid tribute to the Leipzig conference of scientists ([Anonymous 1873](#)):

Furthermore, it is to be regretted that due to the nature of the composition of the congress, which only admits government delegates, it was not possible for many excellent meteorologists who were present at the Leipzig Conference to participate in the work of the Meteorological Congress.

Although it was just a brief 3-day conference after a nearly 20-yr standstill, the Leipzig conference paved the way for international cooperation in the field of meteorology on land, thus opening the way for modern weather forecasting. On the 40th anniversary of the founding of the World Meteorological Organization in 1990, [Ashford et al. \(1990\)](#) acknowledged the importance of this conference:

The achievements of the Leipzig Conference were twofold. It brought together most of the world's foremost meteorologists who were able, in large measure, to reach agreement on standardized methods of observation and analysis, including the use of a single set of symbols. It also prepared the way for holding, in Vienna in the following year, the First International Meteorological Congress.

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