

Project Information

This project contained 1,005 files that covered 10 Virginia Stations in a time period from 1849 to 1893. The files are in rather high resolution about 2 MB per file. The higher resolution is being used as the old records are hard to read at a lower resolution. The files have been converted from a jpg format to PDF so one may use the + sign to increase the size to enable one to read the hand written documents. ***The files are large 2 to 3 MB and will download slow but have better quality as a result.*** Data is from the National Archives T - 907 Roll - 527 1819 - 1892 RG - 27

Meteorology

27.3 Records of the Smithsonian Meteorological Project 1848-91

History: In 1847, under the leadership of its first secretary and director, Joseph Henry, the Smithsonian Institution began collecting records of meteorological observations and started a system of obtaining weather data from voluntary observers throughout the country. The services of these observers were transferred to the weather service of the Signal Corps in 1873.

Textual Records: Letters received, 1848-57, 1859-67. Letters sent, 1850-53. Records of observations made at the Smithsonian Institution, 1858-74. Meteorological observations of the U.S. Coast Survey, 1853-90 and miscellaneous meteorological material are archived by the Smithsonian, 1848-91.

Microfilm Publications: M1379.

Related Records: For a microfilm copy of meteorological reports from voluntary observers, 1840-73, see 27.5.7.



Joseph Henry Portrait, by Ulke, Henry, 1879, Smithsonian Archives - History Div, 10191or AI-10191.

Can you imagine a time when weather forecasts were not available, or when people did not know that storms followed predictable paths? The science of meteorology was in its infancy when the Smithsonian was founded in 1846, but over the next three decades, the Institution developed a national network for collecting meteorological data, and made possible some of the earliest weather forecasts.

When Joseph Henry became the Smithsonian's first Secretary in 1846, he brought with him a longstanding interest in meteorology. In the 1820s, as a professor at the Albany Academy in New York, he had proofed data sent in by weather observers throughout the state. During his time at Princeton University in the 1830s and 1840s, Henry continued to stay abreast of meteorological research.

THE PROBLEM OF AMERICAN STORMS

Henry's "Program of Organization" for the Smithsonian, developed during his first year at the Institution's helm, called for a "system of meteorological observations for solving the problem of American storms." It was not yet known, for example, that many North American storms moved from west to east. For his first Smithsonian annual report, Henry commissioned a lengthy essay by Professor Elias Loomis on the state of meteorological research in the United States, and on the importance of establishing a meteorology program at the Smithsonian. In 1848, he collaborated with US Navy meteorologist James Espy to distribute a circular urging anyone interested in becoming a weather observer "to signify their willingness to do so by a line addressed to the Navy Department," so that blank forms could be sent to them for recording data. The Smithsonian's network of volunteer observers eventually grew to over six hundred people across the US as well as Latin America and the Caribbean. The establishment of this loyal cadre of volunteers also contributed to the Smithsonian's success in developing its first natural history collections, which were largely comprised of specimens submitted by weather observers.1

JOSEPH HENRY PROJECT



Louise Hoover's Painting of Joseph Henry, by Hoover, Louise Rochon, 1933, Smithsonian Archives - History Div, 84-2074 and 31052-E and 94-12563.

In the Smithsonian's second annual report, Joseph Henry predicted that advances in telegraphy would result in the ability to predict storms. The telegraph had been patented by Samuel Morse in 1837, and overland wires would eventually allow for communication across the United States. By 1849, Henry had made agreements with a number of telegraph companies to provide the Smithsonian every day with brief weather descriptions. In 1856, he began using the data to display daily conditions on a weather map mounted in the Castle. Henry shared this information with a local newspaper, giving birth to its daily.

By 1859, the logs of daily observations that the Smithsonian's weather observers mailed to the Institution every month had created a massive backlog of data. Henry hired Professor James H. Coffin of Lafayette College to reduce the raw data, and Coffin employed "from twelve to fifteen persons, many of them female," as "computers" to process the data, but they struggled to keep up with the large amount of work.² Henry himself struggled to answer the many questions raised by observers in the correspondence that frequently accompanied their registers. "Letters are often received asking for information on meteorological and other subjects. These embrace a very wide range of inquiry, and, with the other letters received, make large demands on the time of the secretary," Henry wrote in his annual report for 1859.³ Some observers expressed annoyance that the data they had loyally provided for years was not being published, while others in the form of Smithsonian publications. On the other hand, for observers such as Ernst Kapp, who had been an acquaintance of Karl Marx before emigrating from Germany to rural Texas, simply keeping up a correspondence with the Smithsonian was satisfactory, as it provided an opportunity for intellectual and scientific companionship.⁴

TRANSFERRING WEATHER OBSERVATION TO THE US GOVERNMENT

With its other obligations, by the mid-1850s the Smithsonian could not afford to operate the meteorology program on its own and enlisted the [agricultural division of the Patent Office](#) to distribute and collect weather registers, and to pay the wages of those employed to reduce data. In exchange, Joseph Henry wrote a series of lengthy essays for the Patent Commissioner's annual reports. Five installments of his "[Meteorology in Its Connection with Agriculture](#)" were published by the Patent Office, whose agricultural reports were likely read by many of the [farmers who participated in the Smithsonian's observer network](#). After the Patent Office stopped supporting the meteorological project in 1860,⁵ the Agriculture Department assisted the Smithsonian with collecting data shortly after its establishment in 1862.⁶

From 1861 to 1865, Joseph Henry's meteorological program was severely disrupted by the [Civil War](#). Weather data took a back seat to other important business requiring telegraph lines, and secession prevented southern observers from using the postal service⁷ to mail their registers. Many observers joined the war effort.⁸ Others wrote to say their weather instruments had been confiscated or destroyed.⁹ The strained finances of the Smithsonian, which depended in part on annual Congressional appropriations, made it unable to comply with observer requests¹⁰ for barometers, rain gauges, or other such items.

In 1870, Henry succeeded in transferring the weather forecasting system to an arm of the federal government—the War Department's Signal Service. The Smithsonian's meteorological network had recovered and now included more than five hundred individual observers as well as 140 Army posts. In 1874, the Signal.¹¹ For Henry, the transfer of the meteorological project to the Army was in keeping with his long-held belief that the Smithsonian should "devote its energies to no field of research which can be as well cultivated by other means."¹² The Army continued to be responsible for weather data collection and forecasting until the establishment of the US Weather Bureau in June 1891 that was later renamed the National Weather Service.

FURTHER RESOURCES

Frank Rives Millikan, "[Joseph Henry: Father of the Weather Service](#)," Smithsonian Institution Archives.

FOOTNOTES

¹*Annual Report of the Board of Regents of the Smithsonian Institution for the Year 1878* (Washington, DC: US Government Printing Office, 1879), 26. "The works of the Institution on many orders of insects, and on fresh-water and land shells, reptiles, birds, mammals, &c., were all based more or less entirely on collections and information obtained by the Smithsonian observers." [Return to text](#)

²*Annual Report of the Board of Regents of the Smithsonian Institution for the Year 1857* (Washington, DC: US Government Printing Office, 1858), 28. [Return to text](#)

³*Annual Report of the Board of Regents of the Smithsonian Institution for the Year 1859* (Washington, DC: US Government Printing Office, 1860), 46. [Return to text](#)

⁴ Frank Millikan, "[Joseph Henry: Father of the Weather Service](#)," Smithsonian Institution Archives; Ernst Kapp to Joseph Henry, 12 December 1859 and 2 January 1859, Record Unit 60, Box 4; Ernst Kapp to the Smithsonian Institution, 27 April 1859, National Archives, Records of the Weather Bureau (RG 27).

⁵ Joseph Henry to James Coffin, 19 May 1860, in *The Smithsonian Years: January 1858–December 1865*, Marc Rothenberg, Kathleen W. Dorman, and Frank R. Millikan, eds., vol. 10 of *The Papers of Joseph Henry* (Washington, DC: Smithsonian Institution in association with Science History Publications/USA, 2004), 156–157, doc. 80. [Return to text](#)

⁶*Annual Report of the Board of Regents of the Smithsonian Institution for the Year 1863* (Washington, DC: US Government Printing Office, 1864), 32. [Return to text](#)

⁷ Charles J. Meriwether to Joseph Henry, 20 July 1866, National Archives and Records Administration, [Record Group 27: Records of the Weather Bureau](#). [Return to text](#)

⁸ W.G. Fuller to Joseph Henry, 9 August 1862, National Archives and Records Administration, [Record Group 27: Records of the Weather Bureau](#); E.M. Murch to Joseph Henry, 14 April 1865, Smithsonian Institution Archives, [Record Unit 26](#). [Return to text](#)

⁹ Meriwether to Henry, 20 July 1866. [Return to text](#)

¹⁰ Joseph Henry to Robert H. Lambourn, 9 January 1863, [Hagley Museum and Library](#), Accession 1364: Thomas H. Savery Miscellany. [Return to text](#)

¹¹*Annual Report of the Board of Regents of the Smithsonian Institution for the Year 1873* (Washington, DC: US Government Printing Office, 1874) 31. [Return to text](#)

¹² *Ibid.* [Return to text](#)