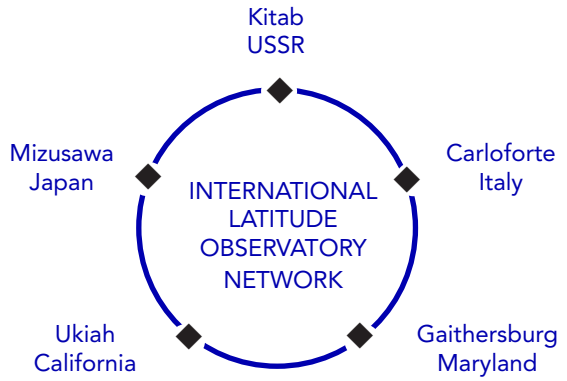
The phenomenon of the earth's wobble on its axis was first announced in 1889 by Dr. Kustner at the Royal Observatory in Berlin, Germany. Although this deviation in latitude had been suspected by other scientists dating back to the 1700s, the break-through prompted the International Geodetic Association to begin a search for strategic locations for stations to carry out systematic observations for solving this scientific puzzle.

The Association, with central headquarters in Potsdam, Germany, was formed for the purpose of conducting geodetic undertakings which were international in character. According to a June 10, 1907, publication of the Astronomical Society of the Pacific, the Association was supported by the most prominent nations of the world, including the majority of the governments of Europe, the United States, the Argentine Republic, and Japan.

The site selection process was documented as being difficult; and after much consideration, four stations passed the stringent tests of social, hygienic, seismological, and meteorological conditions. The prime requisites were that each site must be near the parallel of 39°08′ North Latitude and have a fair proportion of clear nights throughout the year. The first four stations selected were Mizusawa, Japan; Carloforte, Italy; Gaithersburg, Maryland; and Ukiah, California. Later, stations in Tschardjui, Russia, and Cincinnati, Ohio, were added.

Gaithersburg's Observatory was located on the northern part of the farm of I.T. Fulks, who leased the property to the government for 99 years for observatory purposes. The site was thought to be ideally situated on a summit 540 feet above sea level, one-half mile from the Gaithersburg B&O Train Station, just 21 miles northeast of Washington, D.C.



Mr. Edwin Smith of Rockville, Assistant, U.S. Coast and Geodetic Survey, was assigned to oversee operations at the Gaithersburg Observatory; and in July 1899, the Observatory and office building were under construction. Original plans for the Ukiah and Gaithersburg Observatories, prepared by headquarters of the Central Bureau, had specified that the buildings be constructed in iron. However, budget constraints hampered replication of the Japanese and Italian stations. Mr. Smith revised the specifications to conform as nearly as possible to the original drawings, substituting wood for iron. The Gaithersburg Observatory was built from Georgia and Virginia pine with the roof constructed of heavy tin. The roof was designed in two parts which move east and west on iron wheels operated by a rope pulley system within the building. The six-foot, six-inch full opening of the roof was always used at Gaithersburg to accommodate the large zenith telescope. In the early part of August 1899, the Gaithersburg Observatory was in operable condition. The observations were recorded with Coast and Geodetic Survey instruments until the zenith telescope and accessories reached the Gaithersburg station on September 20, 1899.

For the first four stations established, Mizusawa, Carloforte, Gaithersburg, and Ukiah, four new telescopes were constructed by Julius Wanscaff in Berlin, with 108 mm aperture, 130 cm focal length and 104x magnification. The instruments at Tschardjui and Cincinnati, by the same maker, were smaller with less distance and magnification capabilities.

The six Observatories around the world worked in close concert carrying out a program of star study selected by Dr. Kimura, astronomer in charge of the Mizusawa station. Twelve groups of stars, each containing six pairs at small distances not exceeding 24 and two pairs at a greater distance of 60, were selected. Two groups of the stars were observed each night at each station in accordance with a schedule of dates, time and duration, prepared by Dr. Kimura. The irregular daily motion of the earth's axis was believed to be extremely small, but the extent could be determined by precise measurements of the stars. The six stations worked together documenting data to support latitude variations until 1914. Economic constraints forced the closing of the Gaithersburg and Cincinnati stations and during World War I, contact was lost with the Tschardjui station. When communications with the Russian observers resumed, the Association learned that star movement data had been recorded through 1919. It is reported that an abrupt change in a distant river's course threatened the original station at Tschardjui in Russian Turkestan; and consequently, the Observatory was relocated to Kitab. Gaithersburg resumed operations in 1932; however, the Cincinnati station remained closed.

The systematic approach sought by the International Geodetic Association in 1890 to measure the degree of "wobble" occurring in the earth's north-south axis was carried out in the five sister Observatories from 1900 until 1982 when computerization rendered their use obsolete. There are many theories as to why the earth wobbles. Some scientists believe it is caused by melting ice caps; other attribute the variations to the irregularities of the earth's land masses; still others believe the

movement of the seas to be the controlling factor. Regardless of these assumptions, the valuable data collected in these small observatories from 1900 to 1982 is used by scientists today to determine polar motion; the size, shape, and physical properties of the earth; to predict climate and earthquakes; and to aid the space program with determining orbiting patterns of satellites.

This internationally-important 2.3 acre site was deeded to the City of Gaithersburg in 1986 for protection under the Federal Government Historic Monument Program. The historic resources which contribute to the significance of the site as a National Historic Landmark include the Observatory, the Meridian Mark Pier, and five Coast and Geodetic Survey in-ground monuments. The Meridian Marker, or Azimuth Marker, is a white metal pagoda-shaped structure located about 200 feet south of the Observatory which was used to align the zenith telescope. The Coast and Geodetic Survey monuments dating back to 1900 establish exact geographic longitude and latitude positions, elevation above sea level, and the direction of the magnetic north field of force. The Observatory RM-1 monument, dated 1966, is still used by the National Oceanographic and Atmospheric Administration (NOAA) for positional testing of new technology in the Global Positioning System (GPS) Receiver which tracks orbital satellites.

In 1988, the City selected Dell Corporation to restore the Observatory and Meridian Marker. A Field Day celebration was held in May of 1990 to celebrate the award winning restoration and the designation of the Observatory as the City's first National Historic Landmark.

Sources:
ESSA World, October 1967.
Annual Report of the Coast Geodetic Survey, 1990.
Publications of the Astronomical Society of the Pacific, June 10, 1907.
National Historic Landmark Nomination.

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