



YELLOWSTONE NATURE NOTES

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PARTIAL SOLAR HALO OBSERVED AT MAMMOTH
by
William E. Kearns, Assistant Park Naturalist

An interesting phenomenon was observed at Mammoth by a few fortunate folks on Tuesday, December 29, at about 10:30 a.m. A remarkable partial sun halo, complete with sundogs and both inner and outer tangential arcs was visible for nearly fifteen minutes.

The temperature was just about zero at Mammoth, and the sky was filled with either a very thin cloud-like haze or with minute frost crystals. The colors were exceptionally vivid in both the inner and the outer circles and the sundogs (bright spots or mock suns) on either side of the sun in the inner circle were unusually bright.

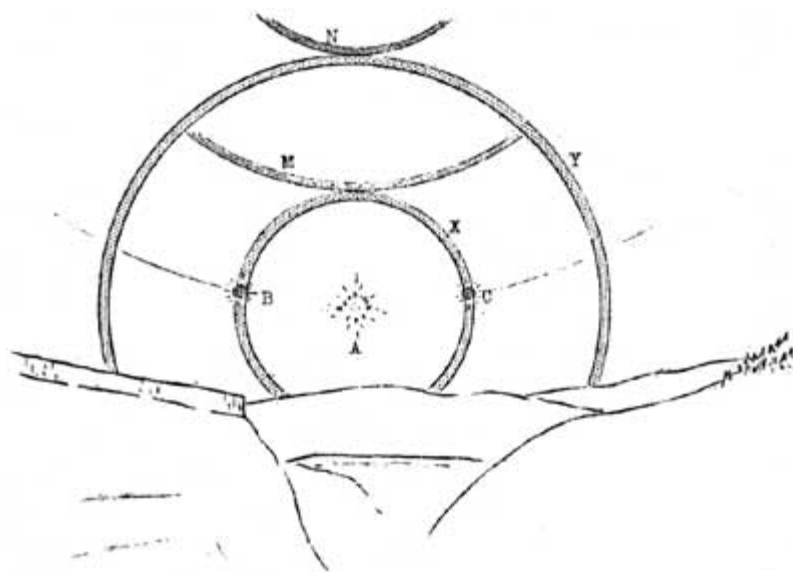
During the months of December and January, I have seen sundogs on three different occasions when the temperature was as low and the air was filled with minute frost crystals, but these observations were quite ordinary and not to be compared with the unusual display on December 29.

From the accompanying diagram one may get a fair idea of the sky-picture as seen and identify its parts by the attached table.

A complete halo is the resulting complex arrangement of circles and spots of light as seen reflected or refracted from a misty cloud of frost crystals--falling earthward in a state of steady and rapid rotation. It is extremely rare that all possible combinations resulting in a complete solar halo may be seen, but Willis L. Moore in his "Descriptive Meteorology" mentions three that have been recorded which "...corresponded very nearly to this ideal and have become classic--

namely, that observed by Scheiner at Rome in 1630, --the halo observed by Hevelius at Danzig on February 20, 1661 and that observed by Lowitz at St. Petersburg on June 18, 1790."

Here at Mammoth where the hot springs "manufacture" many local clouds, and often fill the air with frost crystals, someone may some time be fortunate enough to see a complete solar halo. Although the halo as observed on December 29 was but a partial solar halo, it is of sufficient significance to be recorded here.



- A - Sun
- X - Inner Halo
- Y - Outer Halo
- B - Bright Spots
- C - Bright Spots
- M - Tangent Arcs of Inner Halo
- N - Tangent Arcs of Outer Halo

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