

***HISTORICAL WIND AND MOUNTAIN CLIMATOLOGY
IN SEVERE ENVIRONMENTS:***

**ROCKY MOUNTAIN NATIONAL PARK
NPS WIND RESEARCH NEAR ROCK CABIN,
1973-74**

***SELECTED EXCERPTS FROM A JOURNAL AT ROCK CABIN,
TRAIL RIDGE ROAD, ROCKY MOUNTAIN NATIONAL PARK***

Transcribed and Updated with Photos by

DAVE GLIDDEN

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TR 3 WIND RESEARCH SITE NEAR ROCK CABIN

Rock Cabin, Trail Ridge Road, RMNP

January 3, 1974

Art Dyke (who volunteered to assist during this stint at Rock Cabin), and I arrived and got the wood-coal stove burning. Art noted that the Coleman lantern and stove added somewhat to the heat of the cabin and brought the temperature to a balmy 38 F. Overheated stove and some wall paint started to melt. A dinner of tea, bread, and soup (which Art called "a brown water substance without a single solid...")



ROCK CABIN, WINTER 1973-74

January 4, 1974

Art and I spent an uncomfortably cold night – unable to sleep well because of the sound of wind and the effects of altitude. We finally rose at 0730 to an inside temperature of +7 F. Outside, blowing snow was in progress with a temp of -3 F.

We spent a good part of the morning setting up the blowing snow gage and the TR 4 site, and generally getting equipment organized.

Art shoveled the outhouse, which was 95% filled with snow. I opened up a five foot drift, which was blocking the east door. (Now we know how Kathy Bell felt during her winter research.)



THE "OUTHOUSE" AT ROCK CABIN, FRAMED BY THE CONTINENTAL DIVIDE

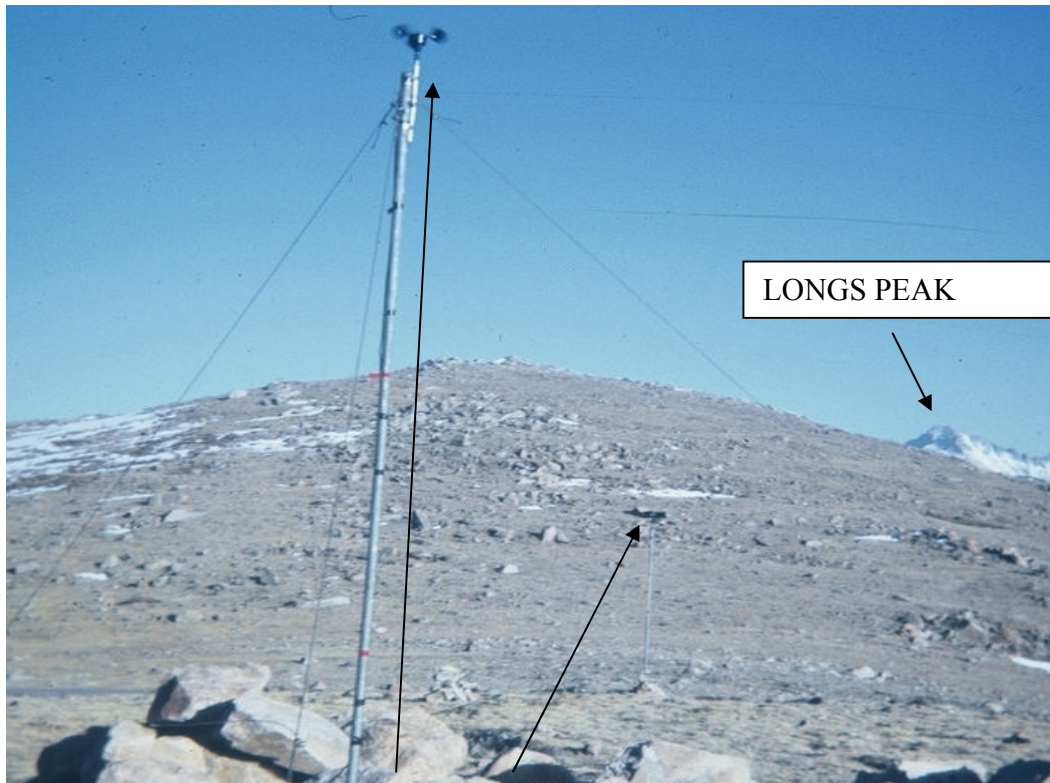
January 5, 1974

A general day of snow and blowing snow, with a maximum temp of +16 F.

We finished setting up a secondary wind sensor at TR 3.

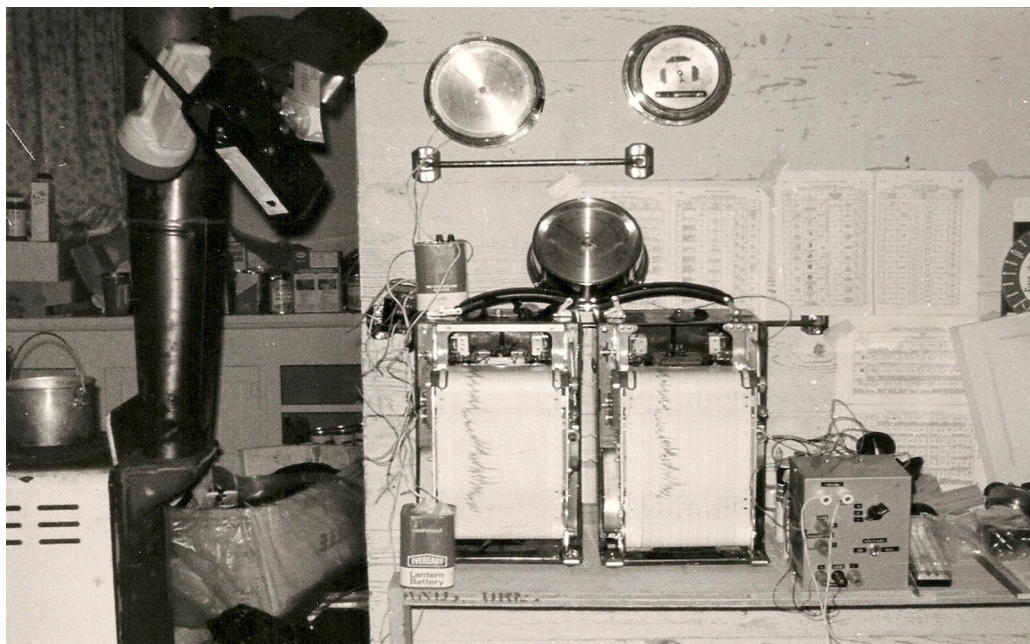
Conditions deteriorated by mid-afternoon. Ranger Steve Hickman came up with 3 climbing partners for a visit. He brought donuts, a freshly-baked loaf of bread, and a replacement Coleman lamp generator (ours failed last night).

Shortly after Steve and company left (about 1500), winds picked up to average speeds of 80 MPH with gusts to 106. Blizzard conditions developed, and considerable snow was driven inside Rock Cabin.



LONGS PEAK

TR 4 AND F420C WIND SENSORS



VIEW INSIDE ROCK CABIN. NOTE STOVE AND WIND INSTRUMENTATION

January 6, 1974

An uncomfortably cold night inside. We awoke late again to an inside temp of +11 F and drifting snow on the floor.

We immediately became aware of a rapidly increasing SW flow, as the building was shaking. Outside, fog and moderate snow and blowing snow were in progress. Winds increased to an average speed of 93-103 MPH at 1315, with recorded gusts to 118 MPH. Some drifting continued inside the cabin, together with "spraying" snow from the stovepipe assembly.

We lost heat steadily, despite a roaring stove, and the best we could do in such winds was to maintain an inside temp of +24 F with an outside temp of +2 F.

Winds slackened during the afternoon, but we remained socked in and cold as we ran instrument comparison tests.

Took melted precip data from Blowing Snow Gage, and compared it to horizontal 8" collection can. Importance of manned station recognized in ability to see and differentiate between actual precipitating snow and blowing snow at ground level.

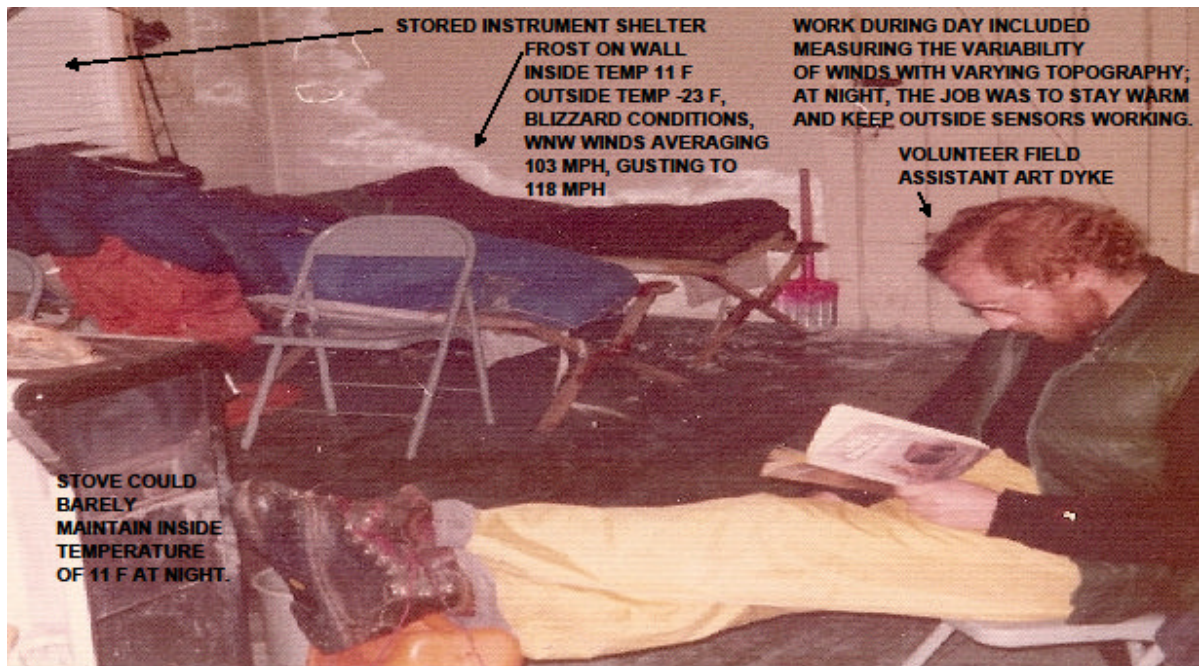


EAST DOUBLE DOOR ENTRANCE AT ROCK CABIN, 1974

January 7, 1974

We learned around 0900 this morning that a Cessna went down in the Park somewhere south of us during the extreme winds of yesterday. Zero visibility, blowing snow, and current average winds of 40-50 MPH kept search aircraft from trying to locate the downed plane. Steve Hickman and a ground crew went in looking this morning – but as far as we can determine, nothing was found by dark. Snow, blowing snow, and high winds remained active all day.

Art and I managed to set up the F420C mast about 30-40 feet south of TR 4, and ran calibration tests with Maximum Units.



LIFE AT ROCK CABIN, RMNP DURING ONE OF MANY WEEK-LONG WIND RESEARCH STINTS IN THE FIELD - WINTER 1973-74 DAVE GLIDDEN

THESE NPS STUDIES FOLLOWED A SEVERE WIND STORM (EARLIER IN THE YEAR), WHICH CAUSED MASSIVE DAMAGE TO THE HIDDEN VALLEY ECOSYSTEM, AND POTENTIALLY THREATENED VISITOR SAFETY.



DAVE GLIDDEN

1973 AERIAL VIEW OF REMAINING ROCK CABIN, WHERE BIOLOGIST KATHERINE BELL (IN 1971) CONDUCTED ALPINE FIELD STUDIES ON KOBRESIA UNDER EXTREME WIND CONDITIONS (SEE *THE MAGNIFICENT MOUNTAIN WOMEN*, UNIVERSITY OF NEBRASKA PRESS, 1990.) THE TR 3 WIND RESEARCH SITE IS ON A ROCK OUTCROP NEAR THE CABIN LOCATION, WHICH OVERLOOKS THE CONTINENTAL DIVIDE. NOTE THE PRONOUNCED STRIATIONS OF SNOW (SASTRUGI) EVIDENT FROM THE AIR, WHICH INDICATE THE STRONG INFLUENCE OF WINDS AT THIS SITE.

NPS AERIAL PHOTOS 1969 VS. 1973 (HIDDEN VALLEY BLOWDOWN)



LARGE AREAS OF NEW BLOWDOWN INDICATED BY ARROWS D. E. Glidden

REFERENCE THE FOLLOWING STUDIES:

Glidden, D. E., 1974, *Analysis of Alpine and Subalpine Wind Conditions in Winter, RMNP*, National Park Service

Glidden, D. E., 1981, *Summer Wind Studies Near the Alpine Visitors' Center, Rocky Mountain National Park*, Rocky Mountain Nature Association, Estes Park CO

Glidden, D. E., 1982, *Winter Wind Studies in Rocky Mountain National Park*, Rocky Mountain Nature Association, Estes Park CO

Glidden, D. E., 2011, *Significant Disturbance Patterns of 12-13 November 2011 Wind Storm in Rocky Mountain National Park*, irma.nps.gov