

NOAA Technical Note NCDC No. USCRN-04-5



USCRN Weighing Precipitation Gauge (Geonor) Mount

Brent French
Oak Ridge Associated Universities
NOAA Atmospheric Turbulence and Diffusion Division
Oak Ridge, TN

Edwin May
Short and Associates, Inc.
NOAA/Office of Systems Development and
NOAA/National Climatic Data Center
Suitland, MD / Asheville, NC

October 2004

U.S. DEPARTMENT OF COMMERCE
Donald L. Evans, Secretary

National Oceanic and Atmospheric Administration
Vice Admiral Conrad C. Lautenbacher, Jr., U.S. Navy (Ret.),
Under Secretary

National Climatic Data Center
Thomas R. Karl, Director

USCRN Weighing Precipitation Gauge (Geonor) Mount

Brent French, NOAA-ATDD, Oak Ridge, TN

Edwin May, NOAA OSD & NCDC, Suitland, MD / Asheville, NC

October 2004

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Climatic Data Center
Asheville, NC 28801-5001

Table of Contents

1. Introduction.....	3
2. Materials Required for the Modified Geonor Mount.....	3
3. The USCRN Geonor Base Mount.....	5
4. References for Construction of the Geonor Mount.....	6
5. Disclaimer.....	6

Figures:

Figure 1: Drawing of Holleander base flange.....	4
Figure 2: Photo of Holleander base flange.....	5
Figure 3: Geonor mounted on the base flange.....	5
Figure 4: Completed Geonor mount.....	5
Figure 5: USCRN site installation (Elgin 5S, AZ).....	6

1. Introduction

The U.S. Climate Reference Network (CRN) stations have a Geonor model T-200B weighing precipitation gauge. The mount for the Geonor gauge has been modified from what is available from the gauge manufacturer. This Technical Note explains and illustrates the modified Geonor precipitation gauge mount.

The gauge is mounted on a Holleander pedestal mount secured to a 6-foot long 2-inch diameter aluminum pipe. This pipe is encased vertically in an 18-inch diameter poured concrete base that extends 36 inches below the ground surface (the concrete depth may be greater to ensure it extends below the frost line). The concrete also extends 24 inches above the ground surface. The pedestal mount is attached at the end of the pipe, approximately 6 inches above the top of the concrete base. (A longer pipe is used and the mounting height increased if required to keep the gauge above the climatic maximum snow depth). The gauge is bolted to the pedestal and all sensors, surge suppressors, and weighing bucket mounts are attached to the mounted gauge. The sensors and suppressors are connected electrically to their appropriate positions. The bucket is added to the bucket mount and the bucket is leveled via the adjustment nuts on the strain gauges. The sensors are then calibrated using the “GEONOR Rain Gauge Calibration Procedure.” The gauge is surrounded by a Small DFIR and Single Alter wind/snow shield. A controlled heater device is attached to the gauge.

The modified mount is used to provide a more rigid base for the gauge, thereby reducing vibrations caused by the wind blowing around the gauge. A custom drilled (by the manufacturer) Holleander pedestal mount is the only special-order item in the mount. The other materials used for the mount are available at local builder supply stores.

2. Materials Required for the Modified Geonor Mount

The materials needed to construct the Geonor mount are:

- One (1) Holleander No. 48 Heavy Duty Base Flange, catalog # 29220 (custom drilled by manufacturer to the specification shown in Figure 1)
- One (1) aluminum pipe, 2” diameter by 8’ long (the pipe is pounded into the soil, encased in the concrete, and then cut to the appropriate height)
- Concrete, approximately 9 cubic feet (~ 0.33 cubic yard)

Total cost of materials, excluding concrete (which varies significantly in price depending on location) is approximately \$30 for the Holleander flange and \$55 for the aluminum pipe, for a total of \$85.

Mounting Flange for Geonor T-200B

Manufactured by Hollaender

standard part no. 29220

2 in. floor flange - custom drilled

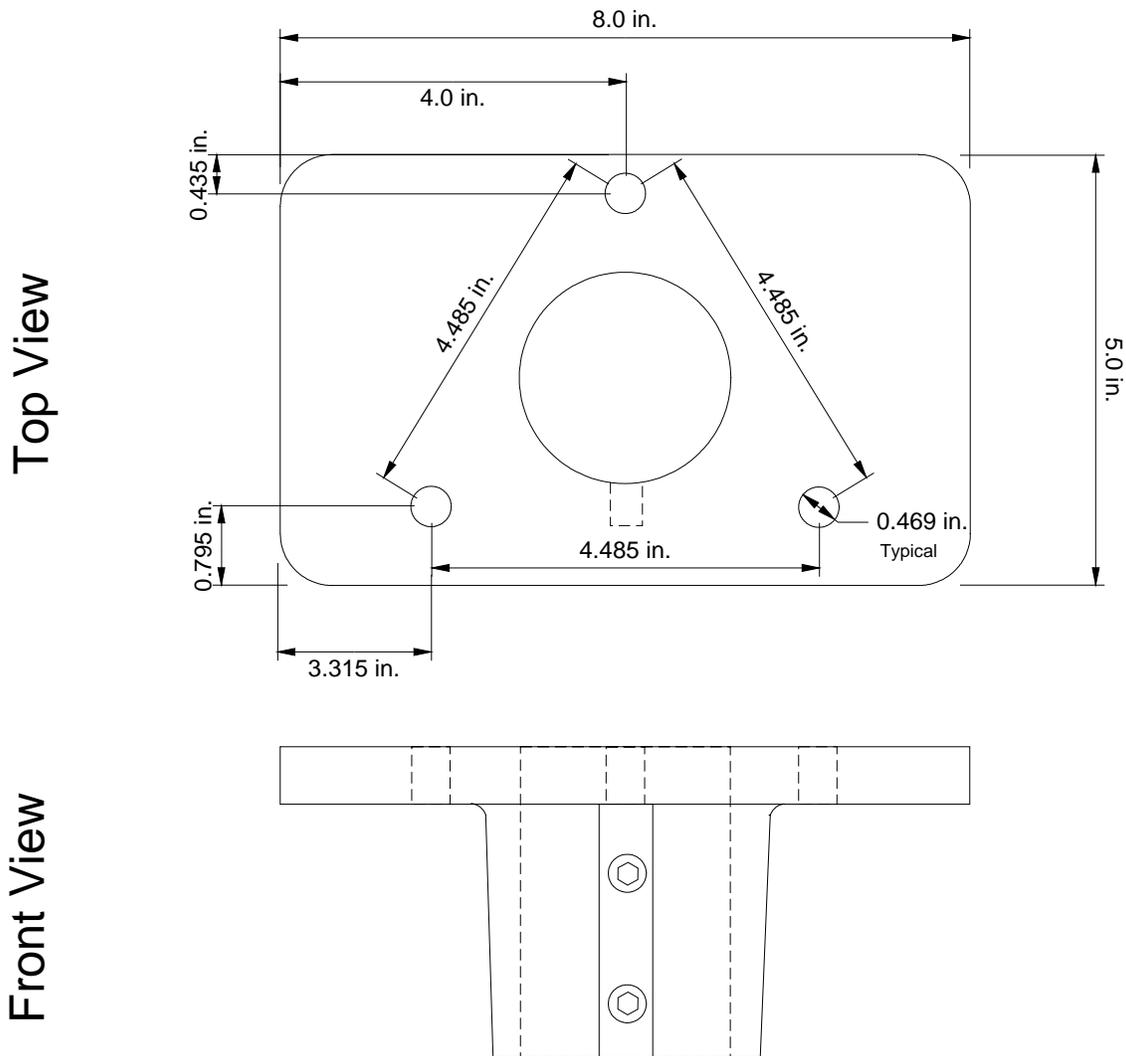


Figure 1: Drawing of the Hollaender base flange, with location of custom drilled holes depicted, on which the Geonor is mounted. The flange assembly is mounted at the top of the 2-inch diameter aluminum pipe, which is protruding from the concrete base.

3. The USCRN Geonor Base Mount



Figure 2: Photo of the Holleander base flange as received from the manufacturer. Mounting holes are custom drilled prior to delivery by the manufacturer.



Figure 3: The Geonor is mounted on the base flange and the assembly then mounted on the 2" diameter aluminum pipe.



Figure 4: Completed Geonor mount.

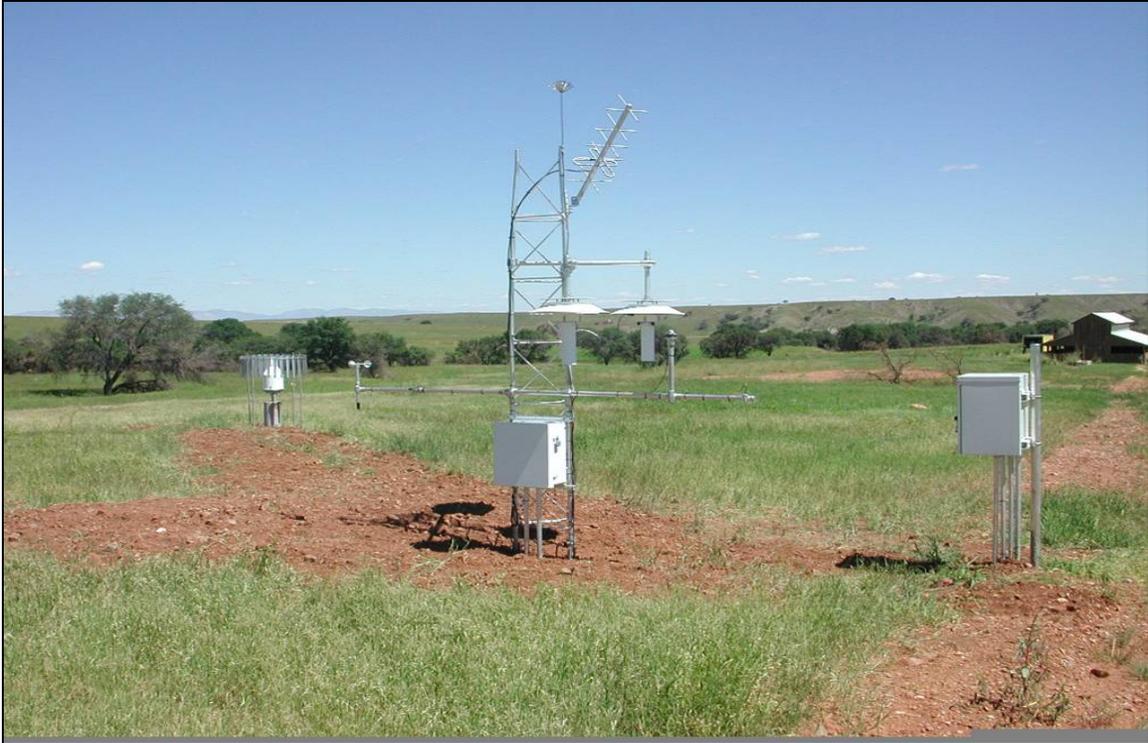


Figure 5: USCRN site installation (Elgin 5S, AZ). The Geonor gauge is seen to the left rear of the instrument tower. The concrete pedestal (1.25' diameter by 2' height) can be seen extending above ground level. This photo was taken prior to the installation of the SDFIR fence around the gauge.

4. References for Construction of the Geonor Mount

Details on the installation and construction of the Geonor base can be found on the NOAA National Climatic Data Center (NCDC) USCRN Web page.

[USCRN Installation Guide](http://www1.ncdc.noaa.gov/pub/data/uscrn/documentation/program/USCRN%20Installation%20Guide.pdf)

(<http://www1.ncdc.noaa.gov/pub/data/uscrn/documentation/program/USCRN%20Installation%20Guide.pdf>)

Sections of the document that contain information pertinent to installation of the Geonor precipitation gage include:

<u>Document Section:</u>	<u>Page Numbers</u>
USCRN Network Site Specifications	3 - 5
USCRN Site Preparation Guide	6 - 11
USCRN Site Installation Guide	12 - 17

5. Disclaimer

Mention of a commercial company or product is for information purposes only, and does not constitute an endorsement by NOAA. Use for publicity or advertising purposes of information from this publication concerning proprietary products or the tests of such products is not authorized.