

# Monument Pins Overview

640 Beth Bartel February 19, 2010 [Antenna Masts and Monument Pins](#) 2769

## Monument Pins

<a href="#">Back to comparison table</a>	Mount Commonly Used	Stability	Cost	Install Time	Labor	Substrate
	<a href="#">campaign GPS/GNSS antenna mount</a>	 med-high	 \$15-50	 <1 hr	 1	BR, R





Danish geodetic marker near Kangerlussuaq, Greenland (left); simple stainless steel pin at site DOIW in Afar, Ethiopia (right).

## Pros

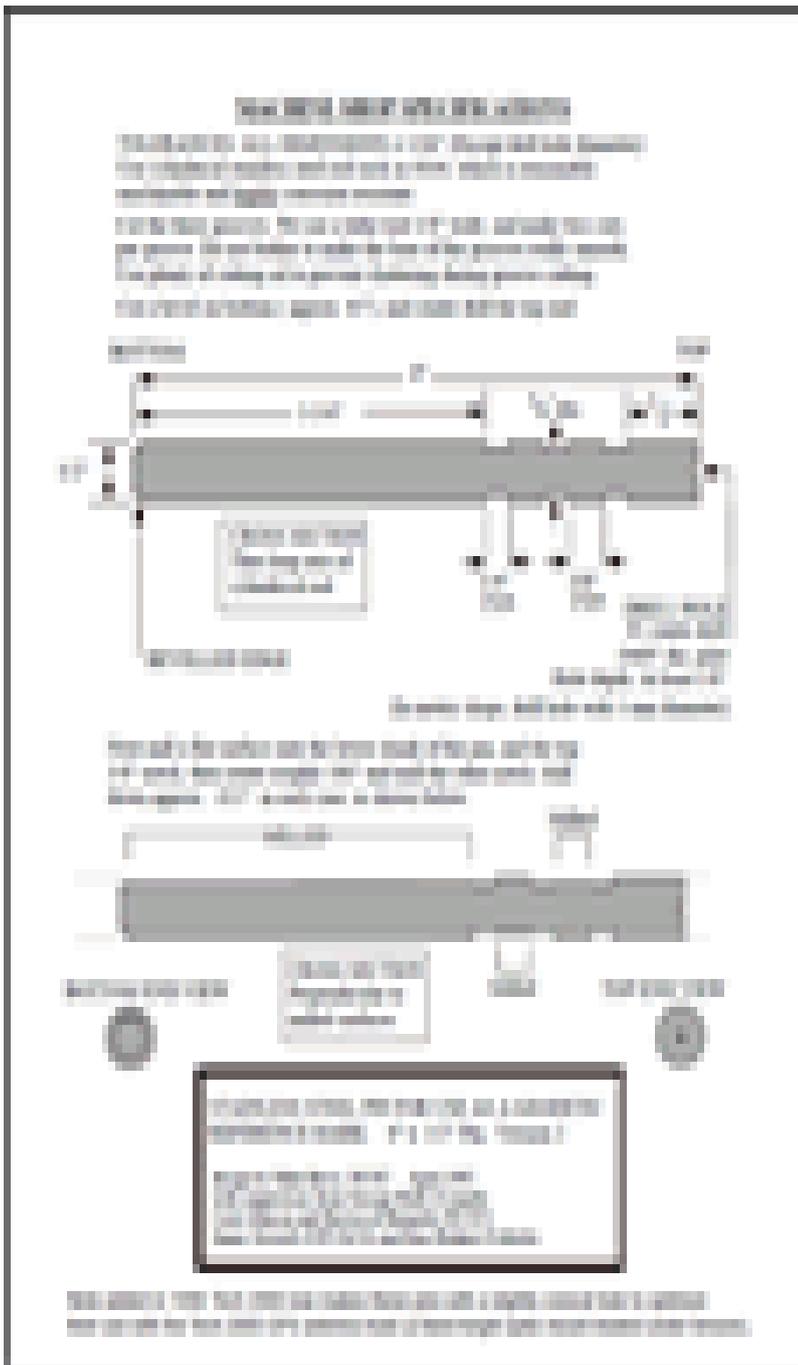
- Inexpensive (e.g. \$15-50, depending on marker design)
- Can be installed with a battery-powered drill
- Small footprint, low profile
- Short installation time (<1 hr, can be as little as 15 minutes)
- Materials and machining are available in most cities
- Can be installed on a rooftop or other stone or cement structure
- Can be occupied with a wide variety of antenna mounts

## Cons

- Can only be installed in solid material
- Must be occupied with a temporary antenna mount

## Design and Construction

There are a variety of marker designs. In general, markers consist of a post with a 1 mm dimple or intersecting crosshairs on top. The marker most commonly used by UNAVCO is the dimpled monument pin, or "Bevis pin." The Bevis pin is a 6-inch long, 1/2-inch diameter stainless steel pin machined with notches on the sides to prohibit rotation and a 1 mm dimple on the top. Machine and installation instructions are given below.



[Bevis pin machining instructions \(.pdf\)](#)



## [Bevis pin installation instructions \(.pdf\)](#)

### Approximate Cost

\$15-50; varies depending on marker design.

### Materials

- pin
- epoxy or quick-setting, expansive concrete and water

### Tools

- battery-powered drill
- tube to blow rock flour out of the hole
- level (optional but preferable)
- needle-nosed pliers for rescuing pins from over-drilled holes (recommended)

### Mount Commonly Used







Many mounts can be used with a monument pin, including the Tech 2000 mast, UNAVCO fixed-height spike mount, standard, short, or fixed-height tripod, or bipod. See the [UNAVCO Resources: GNSS Antenna Mounts](#) page.

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