Deep Foundation Mast Overview

420 Beth Bartel June 26, 2009 Antenna Masts and Monument Pins 1344

Deep Foundation Mast

Back to comparison table	Mount Commonly Used	Stability	Cost	Install Time	Labor	Substrate	
	 SCIGN mount	 med-high	$150	1-2 d	 1	BR	

The deep foundation mast, or PBO Alaska cased monument, consists of a 1.25"-diameter threaded stainless steel mast cemented or epoxied into bedrock or cement. The height may vary; shown here is an ~5" long mast cemented about 20" deep into bedrock. This style of mast has been used throughout the EarthScope Rio Grande network in Colorado and New Mexico, and for GGN sites FALK (Faulkland Islands) and ABPO (Madagascar). --one vertical leg to approximately 40 ft below ground surface grouted at the bottom to rock upper 5 ft of casing in hole insulated and not grouted to allow for shallow ground movement deep bedrock AB17, AC03 (PBO Alaska Cased Monument. Modified well casing monument to depth of 60 ft in unconsolidated sand and gravel. No grout.) , and AB39.

Site RG23 of the Rio Grande network, Colorado and New Mexico.

Pros:

- Inexpensive (approximately $150 for basic materials)
- Materials are readily available
- Small footprint, low-profile

Cons:

- Can only be installed in solid material
- Requires heavy-duty hammer drill

Design and Construction

- A heavy-duty hammer drill is required for installation:

Nicole Feldl of UNAVCO drills the post hole with a gas-powered drill.

Approximate Cost

- $150

This cost is for the monumentation only; the antenna mount (e.g. SCIGN mount) is not included.

Materials

- 1.25" stainless steel pipe (cut to preferred length)
- cement or concrete or epoxy

Tools

- heavy-duty hammer drill and drill bit(s)
- measuring tape or measuring stick
- tube to blow rock flour out of the hole
- bucket for mixing cement or concrete
- level
- compass

Mount Commonly Used

A SCIGN mount is required if using a SCIGN radome. If not using a SCIGN radome, a mount such as the SECO 2072-series stainless steel antenna mount is a more economical solution.