

## Single Vertical Phased Array

## The SVA

To build a Phased array with ONLY ONE VERTICAL, that could switch directions, would seem to be impossible but not so as I will explain.

Back in 1965 W1CF, Dana Atchely invented the 4-Square array (4 verticals) which has become the favorite of DXers for the 80 and 160 meter bands, world wide. Now the computer has made possible new antenna designs and improvements in older ones.

I have been working on an 80 meters 4-Square antenna with elevated radials for some time with poor results. I finally realized that my main problem was that my computer program couldn't correctly analyze the elevated radials over an unknown ground.

I wanted to design my verticals so that one person could walk them up or take them down. I also wanted to approach the performance of a full size 4-square which has 60 ft elements for 80 meters. I chose to limit the height to 39 feet and use top loading.

## VERTICAL CONSTRUCTION

The vertical was a 30 foot piece of 2 inch irrigation tubing which was elevated with a 10 foot section of 2.5 inch PVC pipe. The PVC was hinged from a 4x4 timber, 4 inches above the ground level ( so that it would not lay on the radial ring when down) and reinforced inside at both ends with a 3 ft piece of 2 inch PVC. It was secured to the 4x4 at 3 places above the hinge (photos 1,2,3) so that it would freestand till the guy lines were connected.

