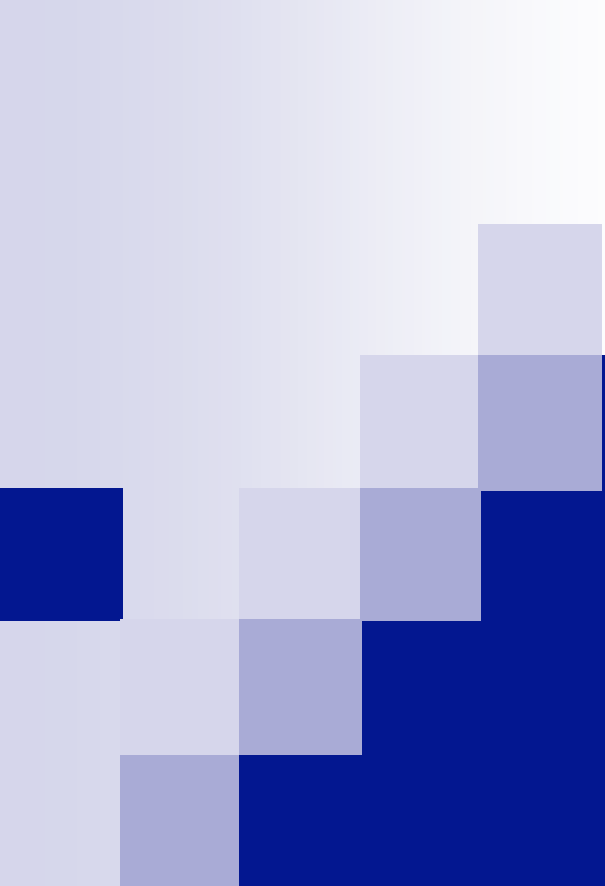




Ground Monitoring of Co-location Vectors

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Networks and Communications
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Vienna, Austria

Introduction

■ Co-location site

- two or more space-geodetic techniques at one site
- distance between techniques up to several km
- essential for TRF combinations

■ Current state

- typical accuracies for tie vector: $\pm 1 \dots 3$ mm
- insufficient number and distribution of co-location sites
- infrequent resurveys

■ Goal

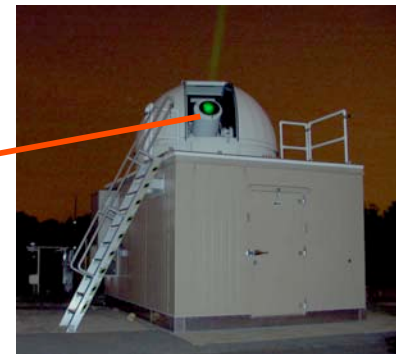
- accuracy ≤ 1 mm
- frequent re-surveys or continuous monitoring

Fundamental Station



VLBI

co-location system



SLR



DORIS

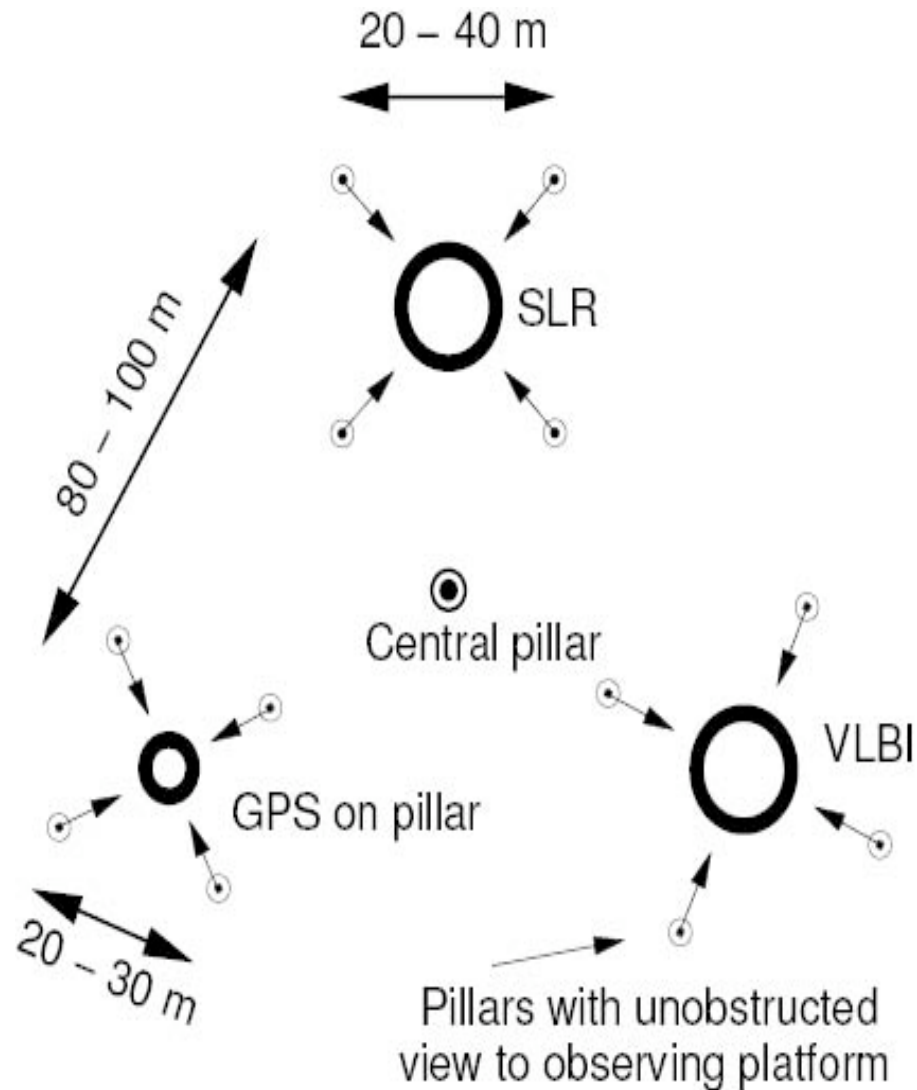


gravimeter



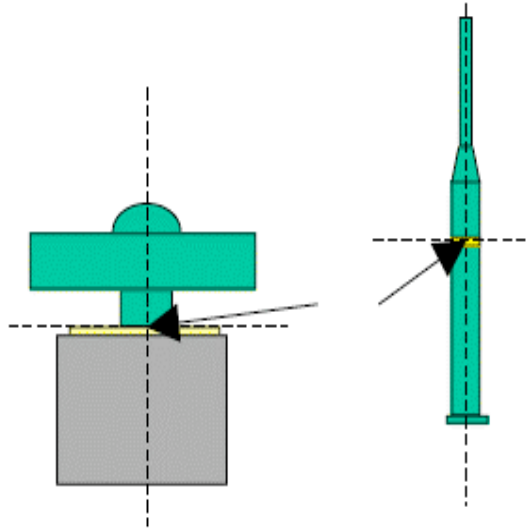
GPS

Idealized Local Monitoring Network



Antenna Reference Points (1)

- GPS and DORIS Reference Points



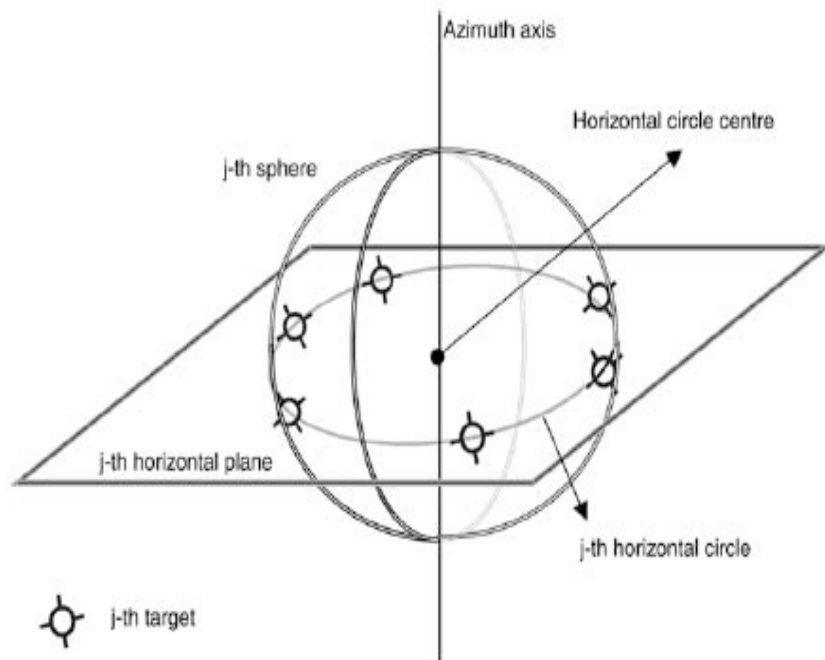
- VLBI and SLR Reference Points

- ☐ RP through indirect approach
- ☐ targets mounted on system structure
- ☐ rotational sequence about axes of space geodetic instrument
- ☐ model to determine axes location

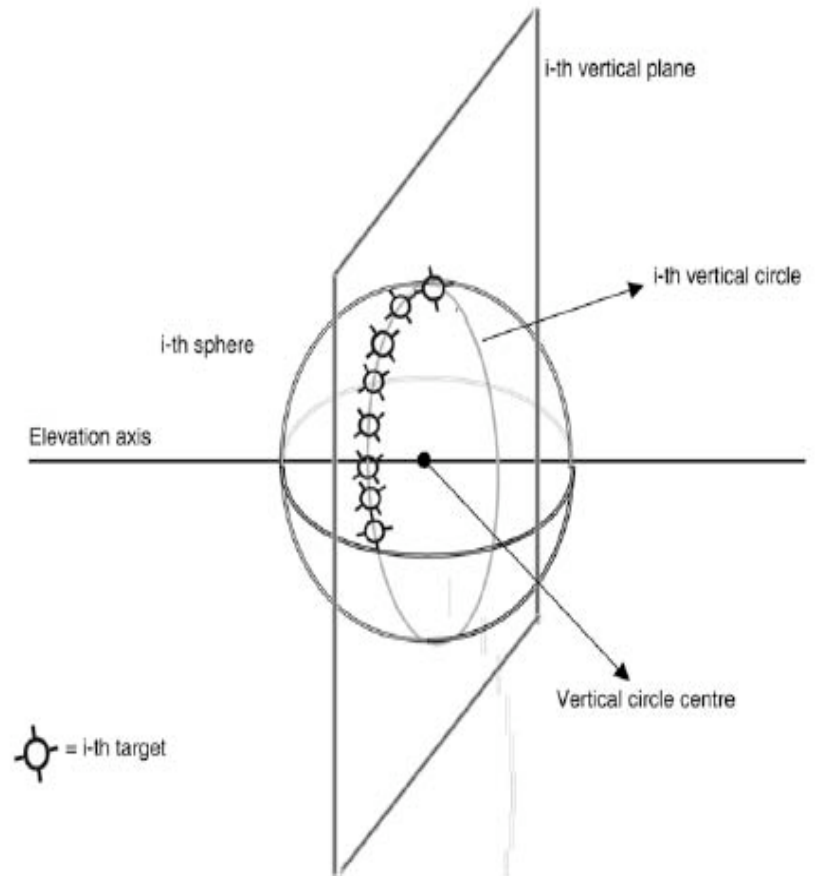


Antenna Reference Points (2)

■ VLBI and SLR (cont'd)



■ azimuth axis



■ elevation axis

Demo: VLBI Antenna



Demo: Total Station



Demo: SLR Telescope



Weatherproofing Examples

