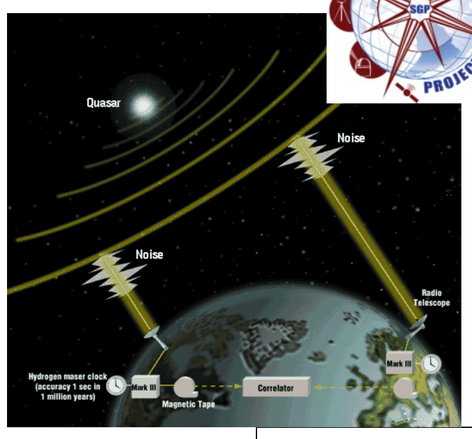
NASA's Very Long Baseline Interferometry

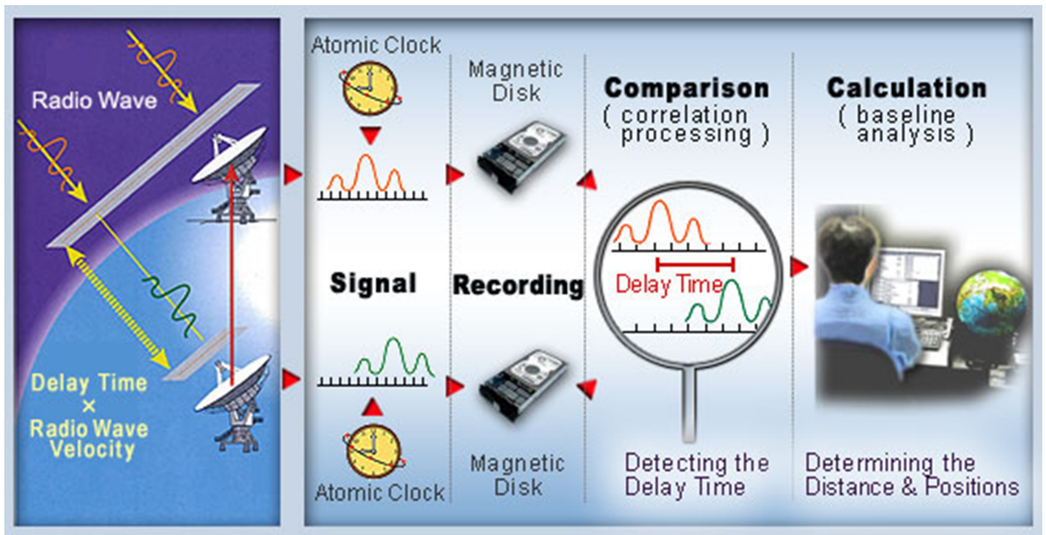


International VLBI Service for Geodesy and Astrometry

IVS is an international collaboration of organizations which operate or support Very Long Baseline Interferometry (VLB I) components.

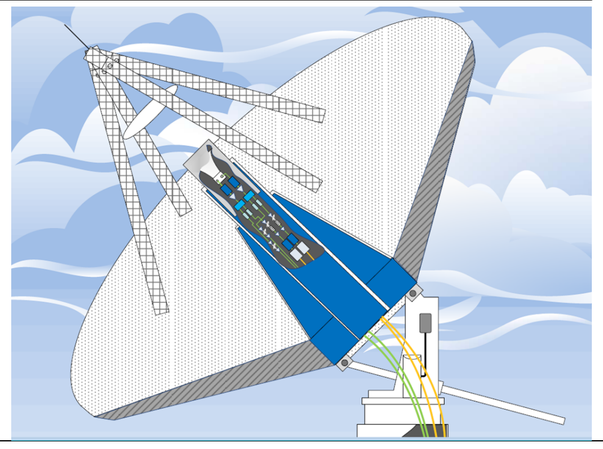
At NASA's GGAO, The IVS VLBI 2010 concept is being prototyped

THE VLBI TECHNIQUE

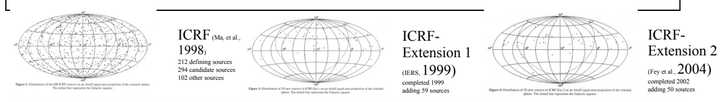


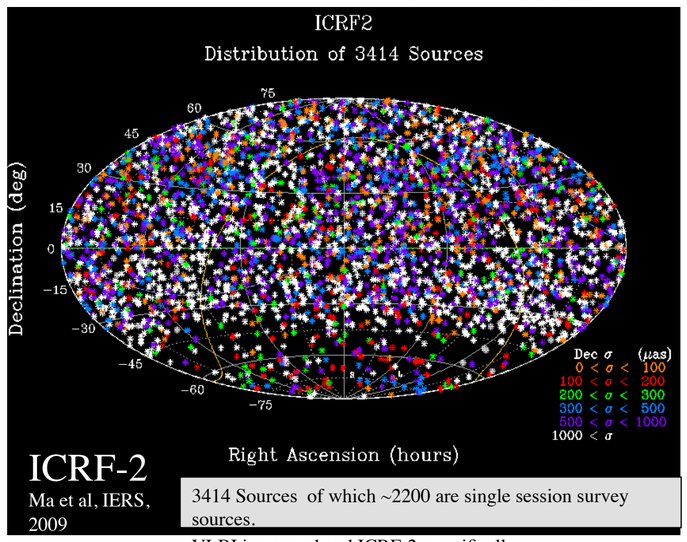
Features of the new VLBI 2010 (VLBI 2010 is the name given to new generation of VLBI stations)

Flexible Bandwidth , High Agility, remotely controlled antennas and recording systems



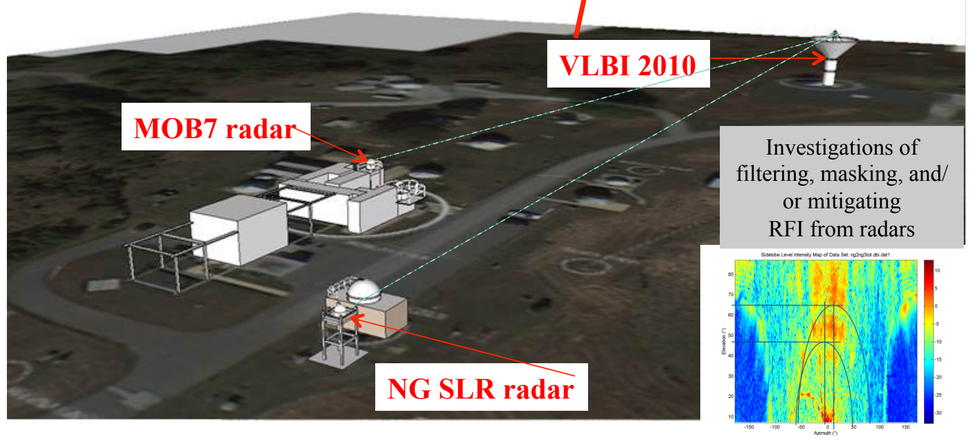
How did VLBI build the International Celestial Reference Frame?





VLBI in general and ICRF-2, specifically, **is sparse south of about -40 deg.**

VLBI @ (area 200 at Goddard aka GGAO)



Investigations of filtering, masking, and/ or mitigating RFI from radars

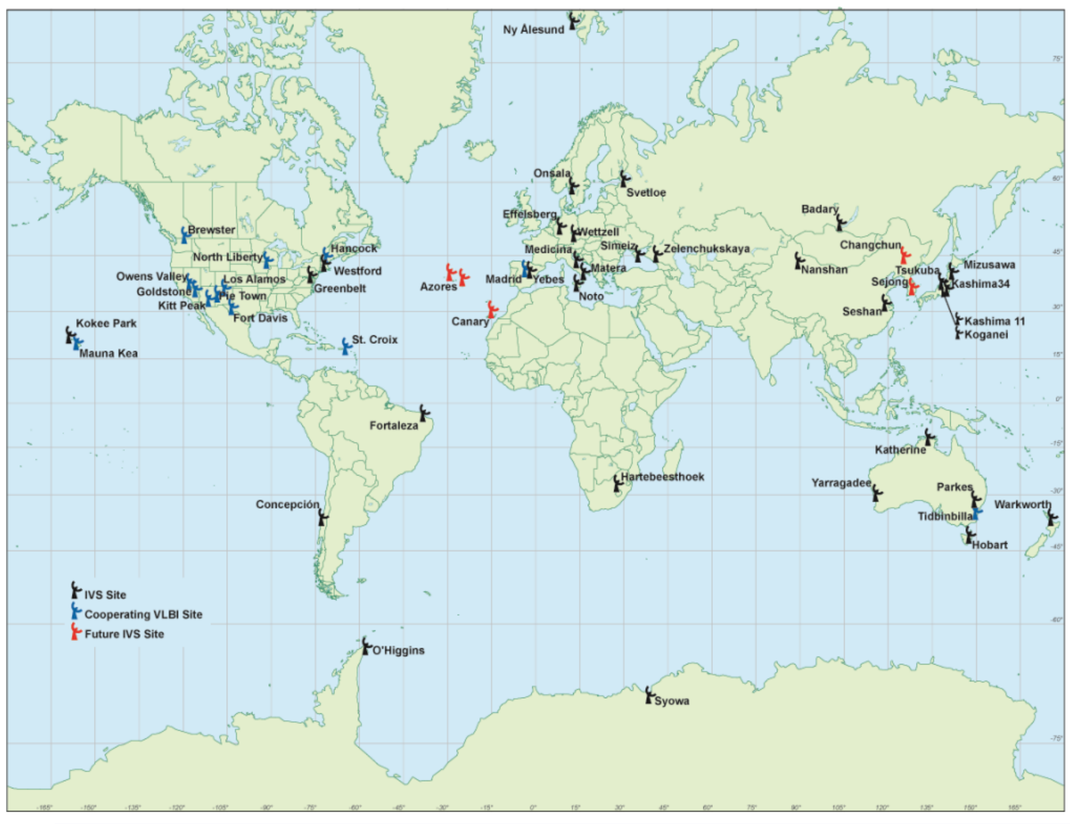
PAST, PRESENT & FUTURE OF NASA VLBI SYSTEMS

VLBI PAST: Gilmore Creek, AK

VLBI PRESENT: Kokee Park , HI

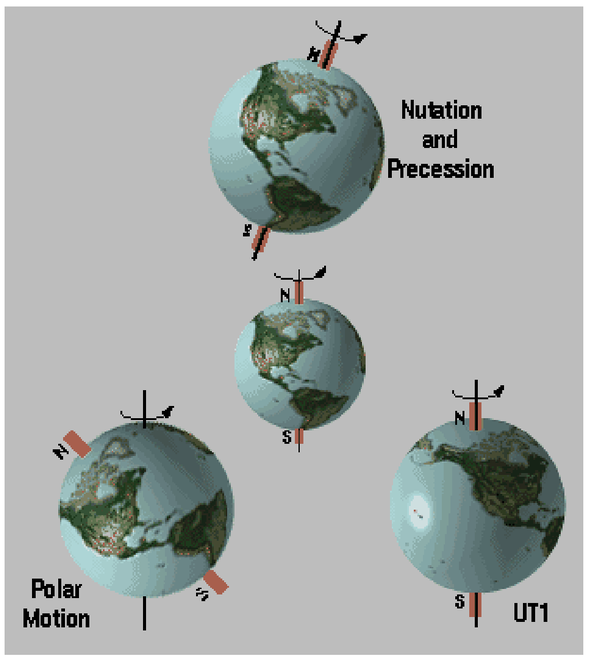
VLBI FUTURE: GGAO - prototype in final development

NASA IS PART OF THE GLOBAL NETWORK OF VLBI STATIONS WHICH CURRENTLY FORM BASELINES OBSERVING SOURCES (QUASARS) at 2 Wavelengths



For more information on geodetic VLBI please go to:
http://space-geodesy.nasa.gov
http://ivscc.gsfc.nasa.gov/

The unique geodetic measurements of VLBI



The orientation of the Earth changes with time. The North and South geographic poles (in red) are imaginary fixed points on the Earth that define latitude. The spin axis (in black) is the line about which the Earth rotates at a particular instant. at some time in the past, (Fig. a), the N and S poles were defined to coincide with the spin axis. Changes in the Earth's orientation are described in three ways, greatly exaggerated at the right for clarity. (Fig. b) Nutation and precession are the periodic and long-term motion of the spin axis in space. The tilt of the spin axis changes with respect to the distant quasars. (Fig. c) Polar motion describes the motion of the N and s poles about the spin axis. Over time the poles are spiraling away from the spin axis. (Fig. d) UT1 describes the nonuniform daily rotation of the Earth. At any particular time, the rotation angle of the Earth differs from what would be predicted if the length of day were exactly 24 hours.

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