Organization, Correlation, and First Results of CONT11

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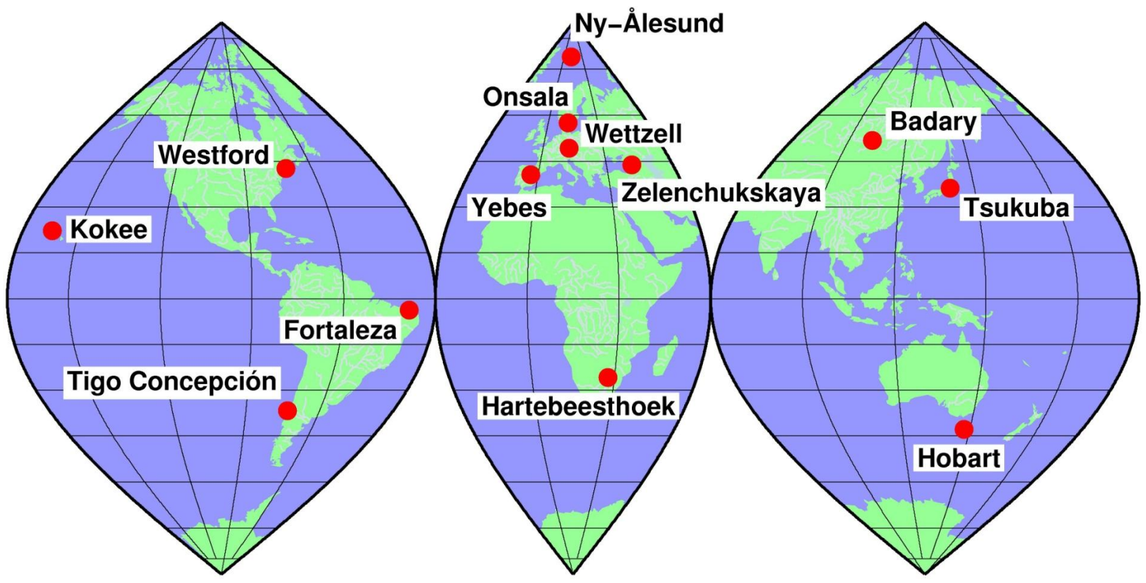
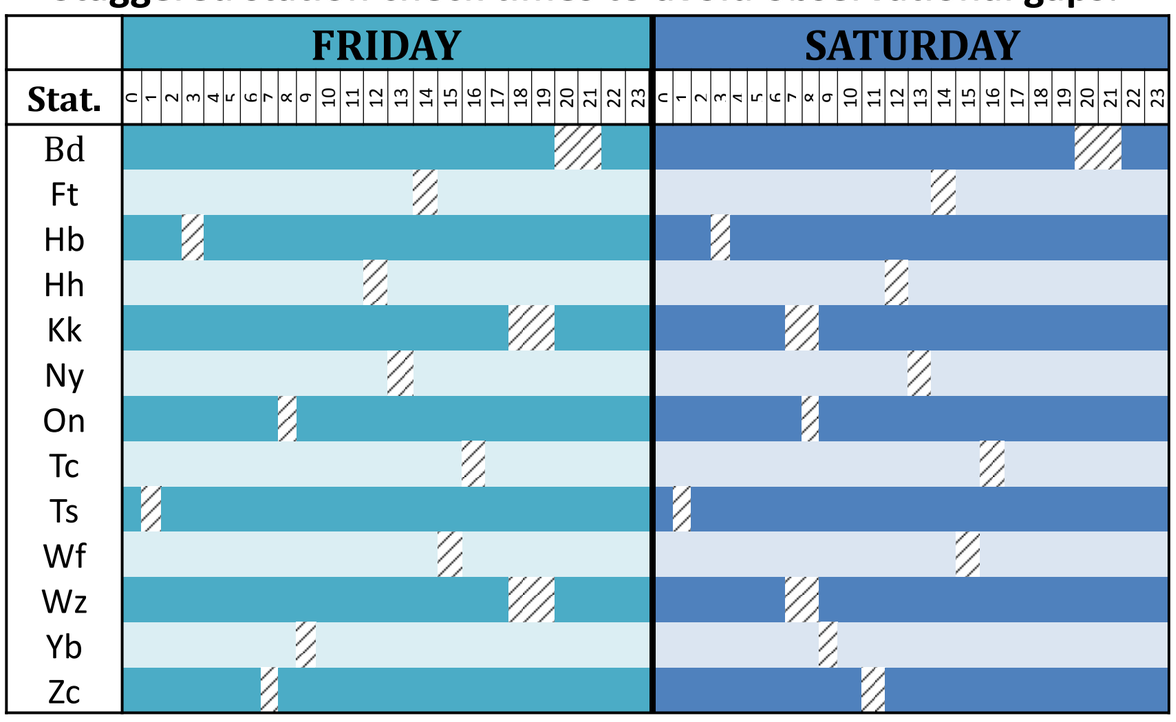
Campaign Organization

13-station observational network:



15 consecutive observation days from 15–29 September 2011; data rate of 512 Mbps; 0–24 UT observation days; Warkworth observed day 12 (c1112).

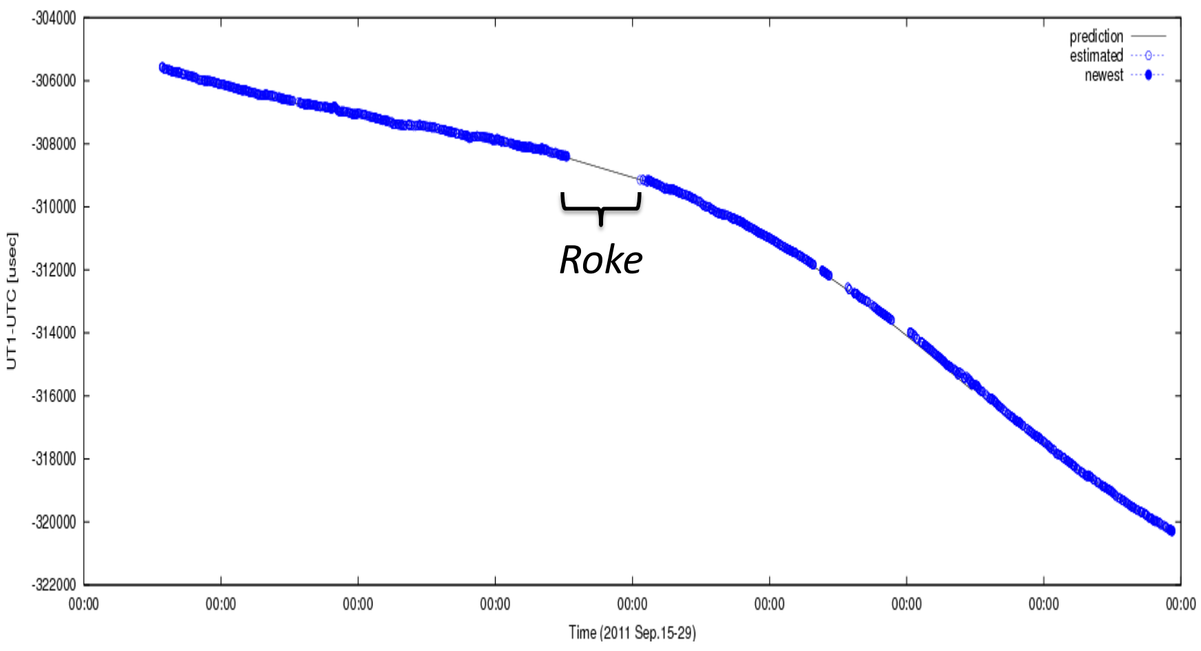
Staggered station check times to avoid observational gaps:



Usually 1 hour tag-along time; 2 hours for Intensive stations; not on first and last day of CONT11; minimized observational gaps at schedule change.

Ultra-rapid dUT1 Determination

Estimated dUT1 values using C5++

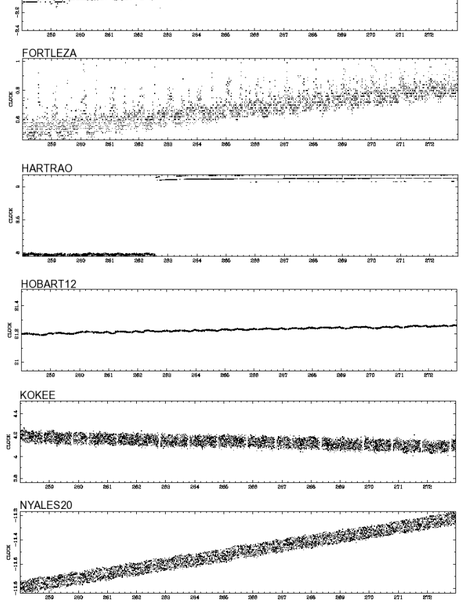


*Baseline **Tsukuba–Onsala**; no observations during passage of typhoon Roke on day 7 (c1107) over Japan; real-time e-transfer of data to VLBI correlator at Tsukuba using dedicated fiber lines; conversion of Onsala Mark 5 to K5 format in near real-time; near real-time correlation using a six-hour sliding window in the analysis; window updated with each incoming scan; dUT1 estimates with very low latency during ongoing CONT11 campaign.*

Correlation at USNO

Correlation parameters, such as station clock values, were kept as smooth and continuous as possible.

Clocks were analyzed over the 15 days. Example: plot of 'fmout-gps' for 6 stations (clock jump at Hh not real, rather change of GPS reference receiver).



The minimum number of clock segments for each station was determined.

Station	fmout-gps (µsec)	Used (µsec)	Comments
Bd	−2.07	−1.34	<266-0000
		−1.20	266-0000–266-2109
		−1.45	>266-2109
Ft	0.55	−7.41	
Hb	21.20	23.87	
Hh	7.97	8.54	No jump
Kk	4.19	5.19	
Ny	−11.99	−11.59	
On	−18.31	−26.23	
Tc	0.72	0.97	
Ts	0.53	1.85	
Wf	10.75	10.86	<264-1930
	10.75	10.78	>264-1930
Ww		−4.41	No rate
Wz	−23.34	−31.08	
Yb	1.01	0.95	
Zc	−1.66	−1.29	

First Results

Overall correlation results

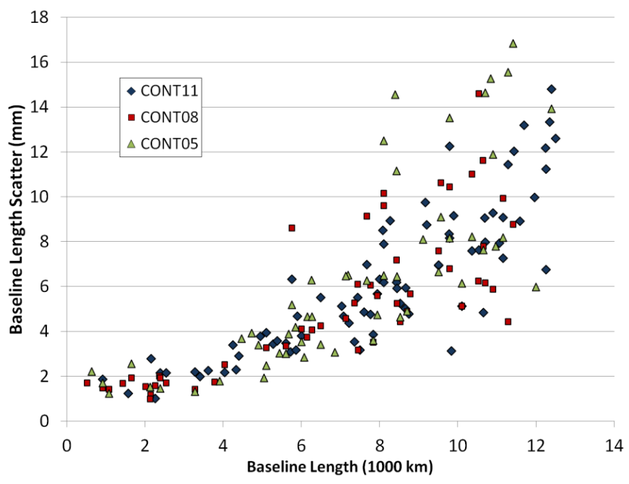
Qcode	%of total scans	%of corr. scans
5–9	87%	97%
0	2%	2%
B–H	1%	1%

Removed 10%.

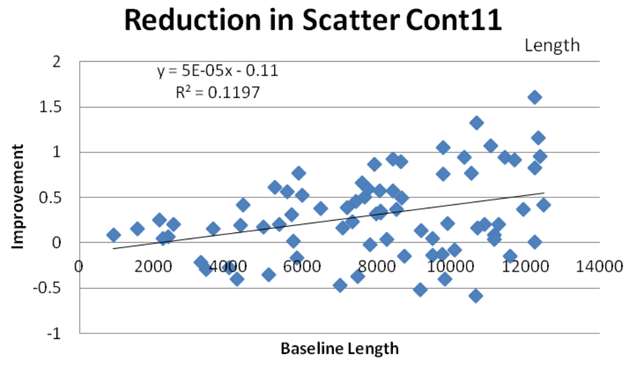
Average EOP formal errors

Campaign	x_p	y_p	UT1	ψ	ε
	µas		*µs*	*µas*	
CONT05	34	33	1.4	69	27
CONT08	36	34	1.5	59	23
CONT11	37	37	1.6	43	17

Baseline Length Scatter



Reduction in Scatter Cont11



If we account for correlated noise between observations at the same epoch (scan) on baselines that have a common station, we get a reduction in length scatter.

VLBI-IGS EOP Differences

	X		Y		LOD	
	wrms	χ_v^2	wrms	χ_v^2	wrms	χ_v^2
CONT05	65	2.7	40	1.1	18	6.9
CONT08	48	1.4	48	1.6	6	1.0
CONT11	33	0.8	31	0.7	6.8	4.7

CONT11 polar motion agrees much more closely with GPS (IGS final series) than in previous continuous campaigns.

- ***CONT11 is one of the best continuous VLBI campaign observed yet.***
- ***CONT11 can be considered a precursor to VLBI2010 observing.***

7th IVS General Meeting "Launching the Next-Generation IVS Network"
Madrid, Spain, 4–9 March 2012

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