



First results of X/S and X/Ka-band catalog combinations with full covariance information

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Andreas Iddink - 22.09.2014







Features of the ICRF2

- 3414 sources
 - 2197 single session sources
 - 295 defining sources
- NNR to ICRF1
- consistency with VTRF2008
- only S/X band observations
- only one single monolitic solution







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Station positions (ST), EOPs (E), Source positions (SO)



GSFC X/S Catalog





- 1682 estimated global source positions (at least 3 good observations in each session necessary)
- including all 295 defining sources



X/Ka Catalog





Features of the provided X/Ka catalog

- solution vector with 631 X/Ka sources (1262 parameters)
- including 208 of 295 defining sources
- NNR constraint uses these 208 defining sources
- no station positions or EOPs available



X/Ka Catalog

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2. Step: Import of the X/Ka catalog with full covariance information



First Catalog Comparisons





GREEN: X/Ka and X/S catalog (443 sources including 208 defining sources) RED: only X/Ka catalog (188 sources) BLUE: only X/S (1227 sources)

Southern Celestial Hemisphere



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GREEN: X/Ka <u>and</u> X/S catalog RED: <u>only</u> X/Ka catalog BLUE: <u>only</u> X/S

123 of 188 only X/Ka sources are in the southern celestial hemisphere





Reconstruction of datum-free X/Ka NEQ





X/S and X/Ka Combination Approach



Residuals Combined Catalog minus Original X/Ka Catalog



To be investigated

- Non ITRF telescope positions
- Frequency dependence
- Core shift
- "Source Tie"