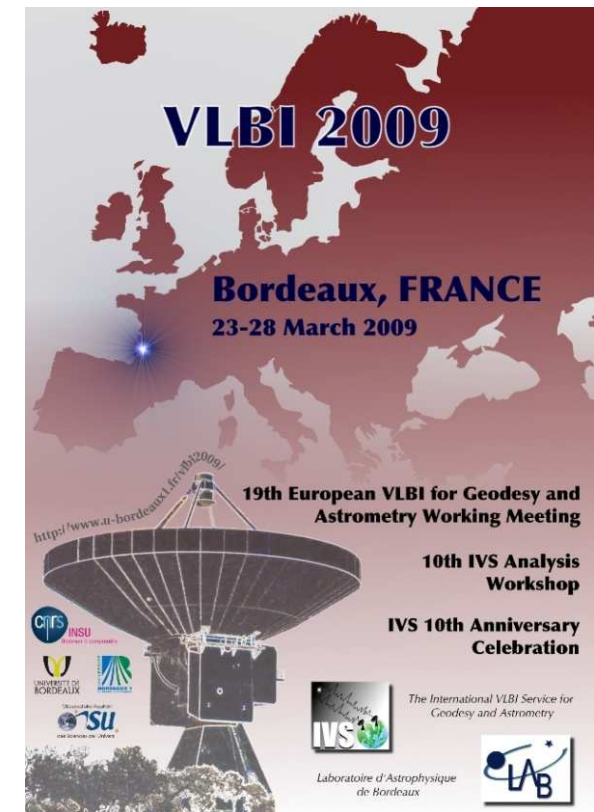


Plans for the Vienna VLBI Software VieVS

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Contents

- Motivation
- Why **Matlab**?
- Occam to VieVS
- Further plans
- Co-operation with NICT

Motivation

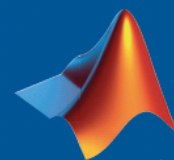
We have been using and developing
Occam. However, we found that ..

Motivation

- Occam has become unnecessarily complex, e.g.
 - obsolete models (e.g. equinox based transformation)
 - many functional models for estimated parameters
- Occam does not fulfill all requirements, e.g.
 - zenith wet delays at integer hours
- Our students are not familiar with Fortran but they are experts in **Matlab**

Why **Matlab**?

- Many of our students would write bachelor-, master-, or ph.d.-theses about VLBI-related topics if they could use Matlab
- Many built-in tools and functions, e.g.
 - netcdf readers and writers
 - matrix tools, plotting tools
- Structure arrays
- etc.



The MathWorks™

Accelerating the pace of engineering and science

Arguments against Matlab

- Matlab is a commercial software
 - Many institutes use Matlab
 - We can provide executables
 - There is a non-commercial counterpart **Octave**
- Matlab is slower than Fortran or C
 - Tests showed that this is not critical for our purposes

Concept

We do not start from scratch but ..

Occam to VieVS

.. but we rely on Occam for transition

Occam

- dtau0
- pn
- station
- geomet
- lsm



VieVS

- data handler



- one common 'calc'

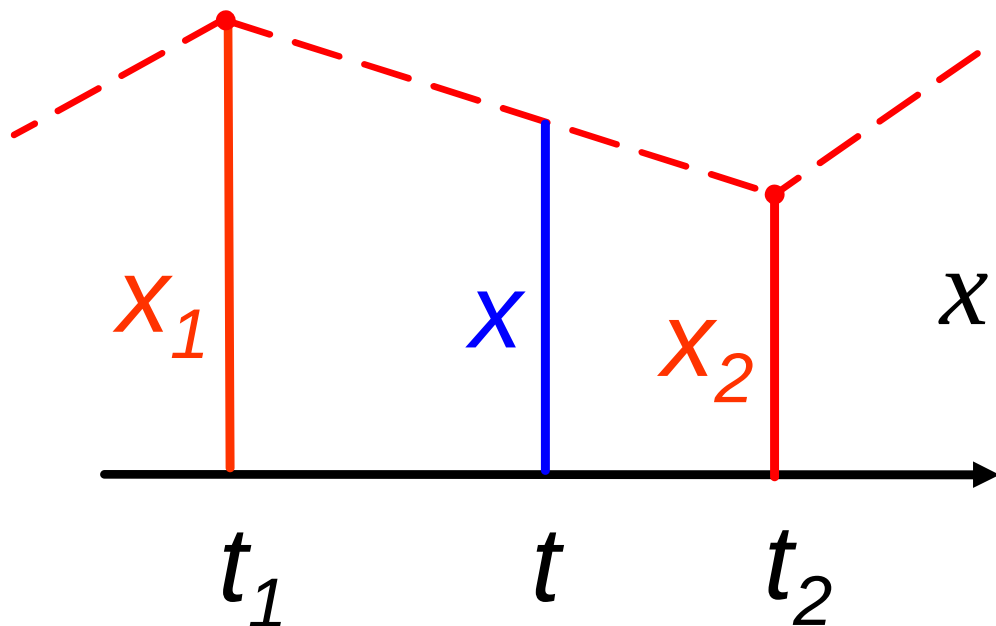


- least-squares

mostly done

Occam to VieVS

- We skip many options, e.g. we only use piecewise linear offsets at integer hours for the least-squares adjustment



$$x = x_1 + \frac{(t - t_1)}{(t_2 - t_1)} (x_2 - x_1)$$

VieVS

- Agreement with IERS Conventions
- Compatibility with VLBI2010 requirements
- Adoption of **IVS WG4** data formats
 - presumably netcdf
 - exchange of results

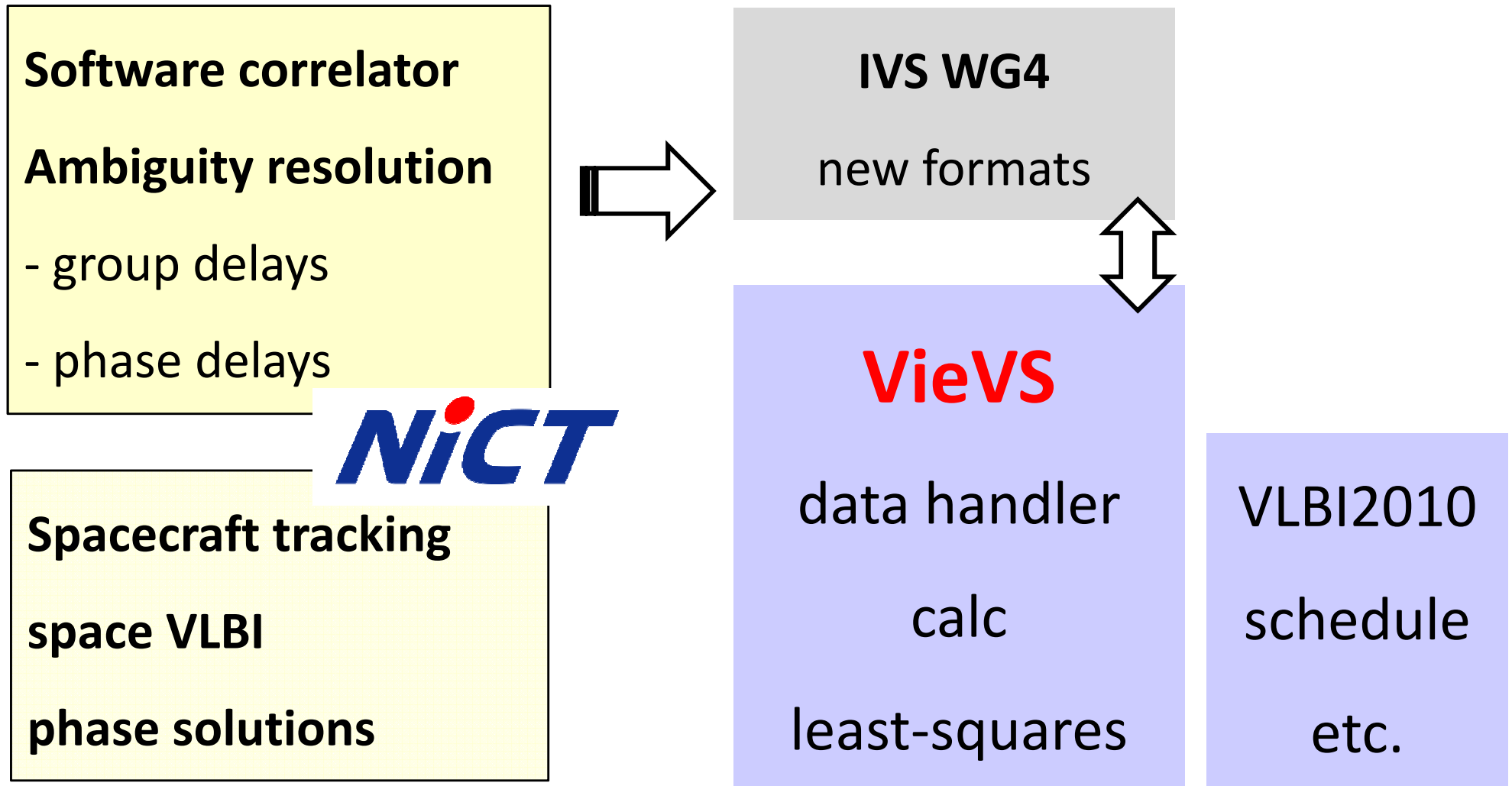
VieVS and related tasks

- VLBI2010
 - continue Monte-Carlo simulation studies
 - add a Kalman Filter solution
 - turbulence theory
- SCHED2010
 - attach a new scheduling software to VieVS
- Global solutions

Co-operation with *NiCT*

- NICT works on own space geodetic software (GNSS, SLR and VLBI)
 - based on Python and bindings to C/C++
- Co-operation with TU Vienna
 - to utilize experience gained with VieVS (Occam)
- Share experience of NICT
 - ambiguity resolution and phase solution
- Work together on space-craft tracking and Space VLBI

VieVS Summary



Thanks for your attention.