

# Support from the Bernese Software for the EUREF–Reprocessing

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Recent model updates in CODE-EPN solution (since week 1600):

- Use of VMF1 (instead of GMF) as troposphere mapping model.
- Consideration of three higher-order ionosphere correction terms:
  - second order term,
  - third order term,
  - ray bending/curvature term (according to IERS Conventions 2010).
- Refined GNSS orbit representation  
(by setting up stochastic pulses at noon).
- Applied OTL CMC correction.



# CODE: EUREF-Processing Options

	Version at AIUB	
Troposphere modelling	GMF/GPT VMF1 Gradient: TAN(z)	
Ionosphere modelling	HOI with scaling factor	
PCV corrections	system-specific	
Ambiguity resolution	$\frac{1}{4}$ cycle shift considered GLONASS is possible	
Individually calibrated antennas	checks the RINEX header entries	
Pre-processing	auto-adaption of options wrt bsl. length	



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Ionosphere modelling	HOI with scaling factor	only first order
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## Implemented features relevant for an (EPN-)reprocessing

- FODITS: Find Outliers and Discontinuities in Time Series
- create a campaign for each session in case of a multi-session BPE
- flexible suspension of PCFs in the menu
- update to IERS2010 conventions  
DE405, OTL-CMC, mean pole, S1/S2 ATL, and others
- handling of equipment changes when generating weekly solutions
- ADDNEQ2 repeatability computation for regional networks
- improve ADDNEQ2 station pre-elimination procedure
- optimize the memory consumption for GPSEST and ADDNEQ2



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  - preparation to release a version 5.2
  - still without multi-GNSS and without the redesigned coordinate and station information file formats



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## other potential interesting features

- GLONASS clock estimation (including PPP)
- Geophysical (deformation) models can be introduced as grids and validated by estimating scaling factors
- Receiver antenna parameters in ADDNEQ2  
flexible multi-year GNSS-Satellite antenna offset estimation
- Adapt SINEX import program for ITRF2008  
(also to extract coordinates/velocities for a given epoch)
- Processing SLR-Range data, not only to GNSS-Sat. but also LAGEOS  
(Bernese Software has passed the ILRS benchmark)
- Menu program goes QT4;  
it can also be used in a remote mode on slow data connections.



## Planned updates of the processing examples:

- update the existing three examples to the latest models
- add more ambiguity resolution strategies
- extension by hourly processing and re-processing aspects
- prepare for a bigger number of stations
- new examples for LEO-processing and SLR-analysis



## New file types

- grid files for VMF1 and geophysical models
- atmospheric tidal loading (extracted from a grid by a program)
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## File types not supported anymore

- file formats prior version 5.0: NEQ,STN,HTR,TRN etc.
- ELE-file from version 5.0 cannot be integrated with version 5.2



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## Changed but compatible

- normal equation
- standard orbit
- observation files
- DCB-file (new types)

## Milestones to prepare version 5.2 for delivery?

1. finish the software developments Jan. 2011
2. review and update all program input files and the corresponding help files Apr. 2011
3. update and extend the processing examples Jul. 2011
4. update and review all readme files Aug. 2011
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(Update the user manual later)



# Bernese Software: administrative update procedure

Announcement of the preparation of the distribution of a Bernese Software, Version 5.2 to the users is **today**.

Update fee same as for version 5.0:

Research	site license	CHF 1 500
Commercial	site license	CHF 4 500
	dual workstation	CHF 4 000
	single workstation	CHF 3 000

All users who have purchased a new license of version 5.0 or ordered an update to version 5.0 **after November 1st, 2010** will get the update to version 5.2 **for free**.

Single and dual workstation licenses will not only offered for windows but also for UNIX/LINUX systems.

**THANK YOU!**

