EUROPEAN TERRESTRIAL REFERENCE SYSTEM 89 (ETRS89)

Definition

The IAG Subcommision for the European Reference Frame (EUREF) , following its Resolution 1 adopted in Firenze meeting in 1990, recommends that the terrestrial reference system to be adopted by EUREF will be coincident with ITRS at the epoch 1989.0 and fixed to the stable part of the Eurasian Plate. It will be named European Terrestrial Reference System 89 (ETRS89).

Realization

Following its definition, ETRS89 could be realized through several ways, and specifically:

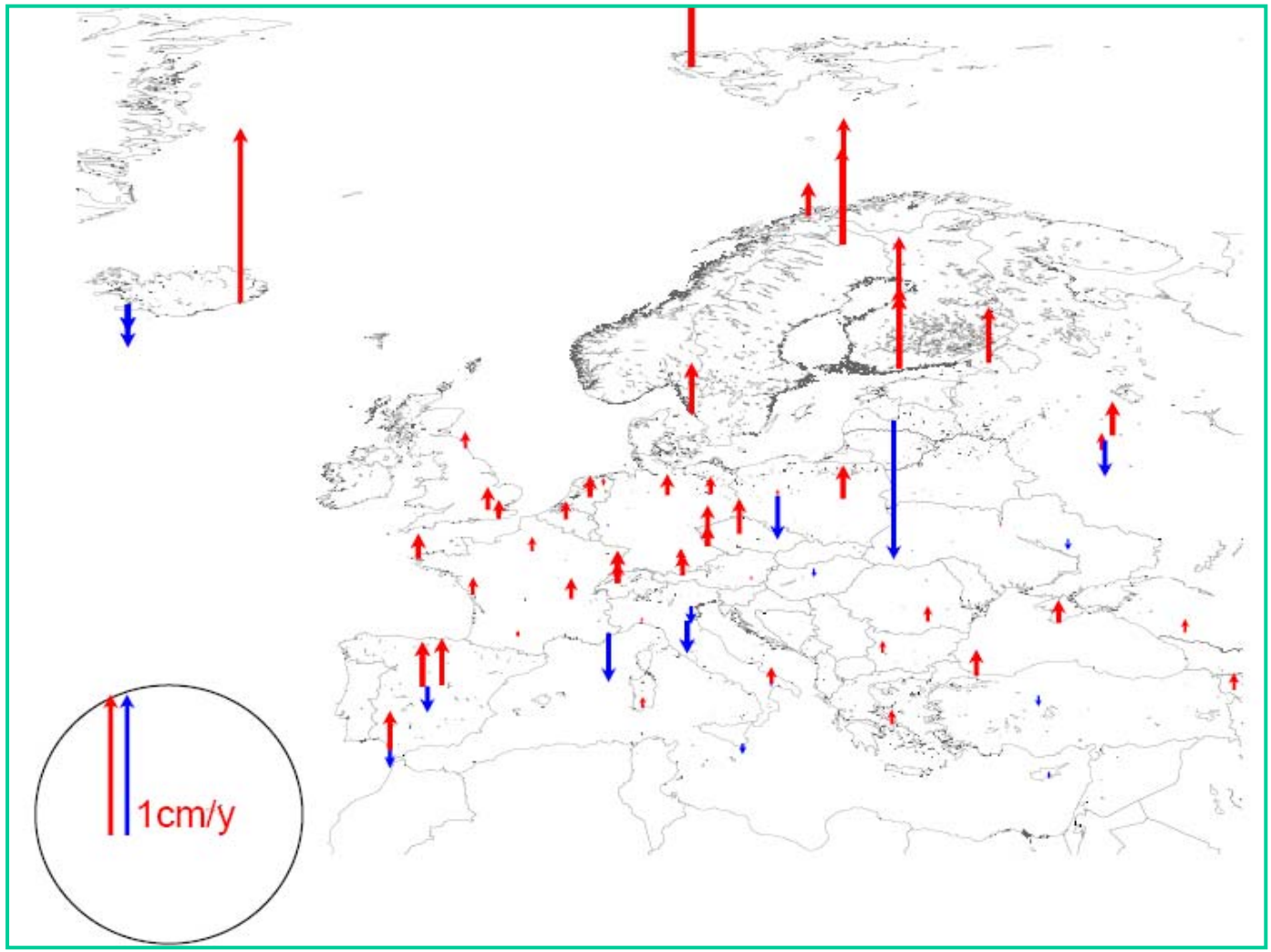
- **using ITRS realizations: for each frame labelled ITRF$_{yy}$ a corresponding frame in ETRS89 can be computed and labelled ETRF$_{yy}$.The following ETRF solutions are presently available:**
  - **ETRF89**
  - **ETRF90**
  - **ETRF91**
  - **ETRF92**
  - **ETRF93**
  - **ETRF94**
  - **ETRF96**
  - **ETRF97**
  - **ETRF2000**
  - **ETRF2005**
  - **ETRF2005 (SINEX file)**
- **positioning with GPS measurements of a campaign or permanent stations: using recent ITRF$_{yy}$ station coordinates and IGS precise ephemerides following the procedure described in (Boucher and Altamimi, 2007): Postscript version, PDF version.**

Table 4: Estimation of $\dot{R}_{YY}$

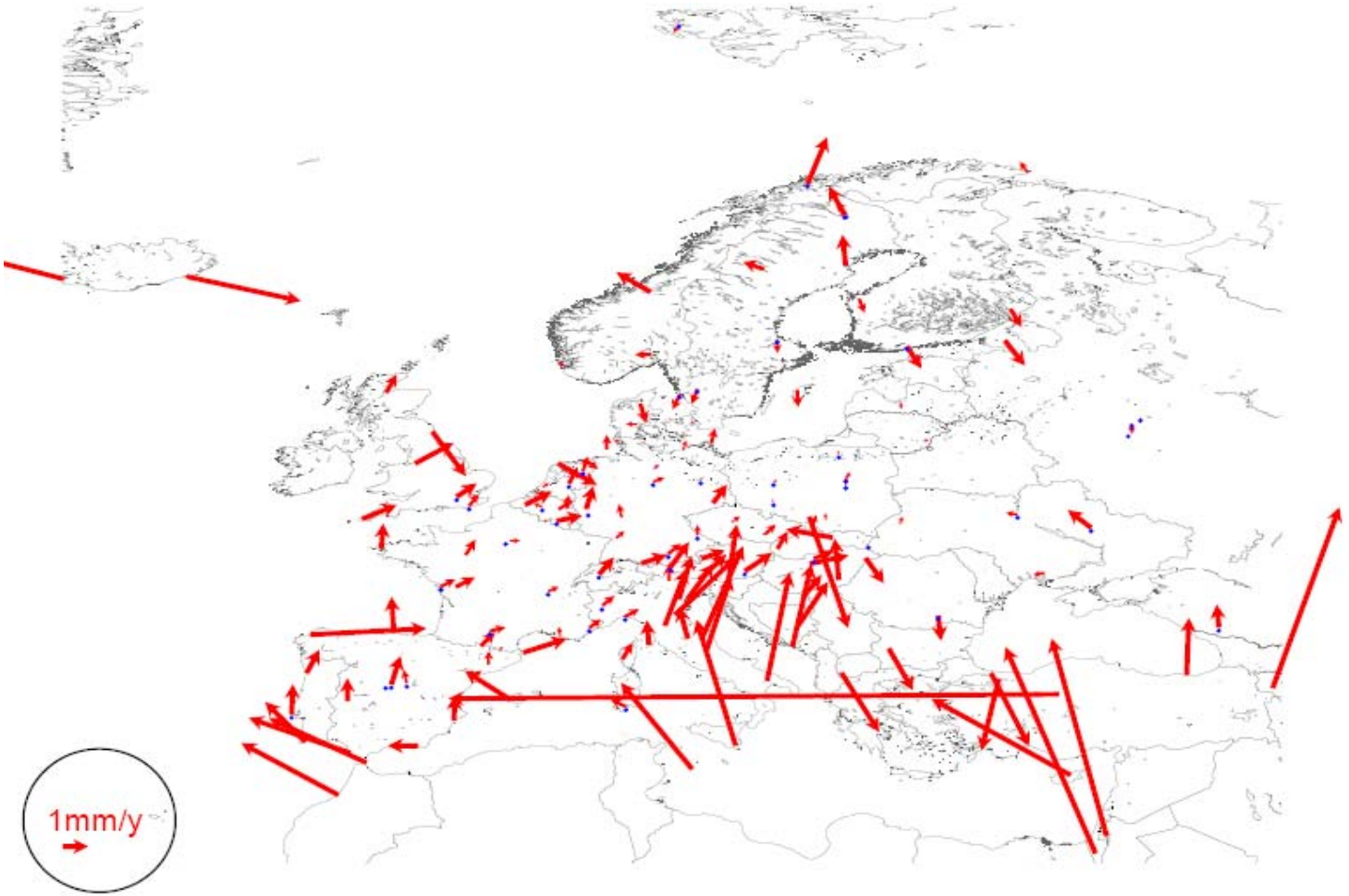
YY	$\dot{R}1$ mas/y	$\dot{R}2$ mas/y	$\dot{R}3$ mas/y
89	0.11	0.57	-0.71
90	0.11	0.57	-0.71
91	0.21	0.52	-0.68
92	0.21	0.52	-0.68
93	0.32	0.78	-0.67
94	0.20	0.50	-0.65
96	0.20	0.50	-0.65
97	0.20	0.50	-0.65
00	0.081	0.490	-0.792
	$\pm$0.021	$\pm$0.008	$\pm$0.026
05	0.054	0.518	-0.781
	$\pm$0.009	$\pm$0.006	$\pm$0.011

ETRF2005 Horizontal Velocities

ETRF2005 Vertical Velocities



EPN (ETRF2005) Horizontal Velocities



EPN (ETRF2005) Vertical Velocities