1.4) Excentricites

The excentricities used for ITRF90 are given in Table T5 of the appendix.

2) DATA ANALYSIS

The ITRF90 solution consists of a combined adjustement of station positions and transformation parameters for the epoch 1988.0.

The adjustment were performed using the SSCMIX software developped by IGN. The options used were:

- reduction of individual data sets at a common epoch,

- least square estimation of station coordinates and 7 transformation parameters for each solution,

- local surveys used with a priori variances (see 1.4)

- station coordinates used with a priori variances (see 1.3)

It was decided that:

- origin should come from SLR

- scale should also come from SLR noting that the VLBI scale (GSFC and NGS) is now consistent with SLR,

- orientation should be such that no global rotation should exist with respect to ITRF89.

To ensure that, a first global adjustment of all selected data was done, holding the LC transformation parameters fixed to zero. The solution was labelled ITRF90A.

Then ITRF90A was compared to ITRF89 in order to estimate corrections to rotation angles. This comparison has been done incorporating only one point per site. Table 2 gives the transformation parameters between ITRF90A and ITRF89. The global adjustment was finally repeated with LC translation and scale put to zero and rotation angles fixed to the values derived from the previous computation.

Table 2

Comparison ITRF90A - ITRF89
one point per site

T1 cm	T2 cm	T3 cm	D 10^{-8}	R1 0.001"	R2 0.001"	R3 0.001"
-0.5	-2.4	3.8	-0.3	0.2	-0.4	4.3
0.4	0.4	0.4	0.1	0.2	0.2	0.2

As some solutions have derived velocities, we have elaborated two adjustments at the epochs 1984.0 and 1990.0 for these solutions. We fixed in the two adjustments the 7 parameters of LC to zero. We then estimated annual rates of rotation for RG, RN, LD and LU given in Table 3.

Table 3

Orientation rate of change of some solutions

Network	R1 0.001"	R2 0.001"	R3 0.001"
SSC(GSFC) 91 R 02	-0.03	-0.10	-0.23
	0.26	0.20	0.17
SSC(NGS) 91 R 01	-0.40	-0.23	-0.10
	0.26	0.26	0.20
SSC(DGFII)91 L 01	-0.03	0.02	-0.17
	0.17	0.17	0.15
SSC(DUT) 91 L 01	0.37	0.48	-0.65
	0.20	0.17	0.15