SUMMARY

This report contains a detailed description of the IERS products related to the Terrestrial Reference System for the period of the 1993 IERS Annual Report. It gives a detailed analysis about the ITRF93 and its associated combined velocity field.

In this analysis, we have constrained the orientation of the ITRF93 and its rate of change with time to be consistent with the IERS series of Earth Orientation Parameters (EOP). The corresponding ITRF93 velocity field estimated in this way appears to have a small rotation rate in comparison to the geophysical motion model NNR-NUVEL1A (see page 17). A second velocity field (labeled ITRF93N) is estimated and allowed to follow the time evolution of NNR-NUVEL1A.

This description intends to be the continuation of the previous reports: the IERS Technical Notes 4 , 6, 9, 12 and 15. In particular, methodological presentation will be followed here.

1) INPUT DATA

1.1) Sites included

The list of sites considered in the 1993 solution is included in Table T1 of the appendix.A more detailed list of points and marks for these sites is also provided by the Table T2 of the appendix.

Table T3 also gives a summary of the occupancies of these sites by VLBI, LLR, GPS or SLR instruments. We have distinguished the IERS sites into the following data sets:

1) colocation (at least two techniques)
2) multiple SLR (simultaneous or successive)
3) single SLR
4) multiple VLBI (simultaneous or successive)
5) single VLBI
6) multiple GPS (simultaneous or successive)
7) single GPS

1.2) Input data sets

The data sets received by the IERS Central Bureau for 1993 analysis are summarized in Table 1. Table 2 summarizes the contribution of these data to the ITRF93 combinations.

1.3) Description of individual data sets

For all solutions, no permanent tidal correction has been performed, and the adopted velocity of light is $c = 299792458 \text{ m s}^{-1}$.

As the formal errors σ_f provided by the analysis centers are in most cases too optimistic, the input errors σ are adopted according to the following formula: