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A combination of independently determined Earth orientation data has been generated from space-geodetic observations spanning 1976-1994. The approach taken is the same as that used in generating previous such combinations (Gross, IERS Technical Note 17, pp. C5-C13, 1994) and will be only briefly described here. Since it was desirable to combine only independent determinations of the Earth's orientation, only those series listed in Table 1 were used. Note that only the Scripps GPS measurements through May 31, 1992 were used, with the JPL GPS measurements being used thereafter. Similarly, only the USNO IRIS Intensive UT1 determinations made after January 1, 1995 were used, with the NOAA IRIS Intensive series being used before then.

Prior to their combination, the bias and rate of each series was iteratively adjusted so as to be in agreement with the bias and rate exhibited by a combination of all other series; the stated uncertainty of each series was adjusted by applying a multiplicative scale factor that made the residual of that data, when difference with a combination of all other data, have a reduced chi-square of one; and those data points whose residual values were greater than three times their adjusted uncertainties were deleted. In order for the final combination, SPACE94, to be given within a well-defined terrestrial reference frame, an additional bias-rate correction was determined for each series by aligning it with the IERS Earth orientation series EOP(IERS) 90 C 04. The total bias-rate corrections and uncertainty scale factors that have been applied to the individual series prior to their combination into SPACE94 are given in Table 1 in the natural reference frame for each data type: the transverse (T), vertical (V) frame for single baseline VLBI measurements; the variation-of-latitude (LAT), UTO frame for single station LLR measurements; and the usual UTPM (PMX, PMY, UT1) frame for all other measurements. The errors in the bias-rate corrections (given in parentheses in Table 1) are the formal errors in determining the incremental bias-rate corrections during the last iteration of the iterative, round-robin procedure. There are no bias-rate entries in Table 1 for components that were either not used or not available.

The resulting EOP combination, SPACE94, spans October 6, 1976 to January 27, 1995 at 1-day intervals. The EOP values reported here do not include diurnal and semi-diurnal tidal variations since they have not been added back after being removed, when necessary, from the measurements prior to their combination.

ACKNOWLEDGMENTS. I would like to thank all those involved in taking and reducing the raw Earth orientation measurements that have been combined into SPACE94. This study would not have been possible without their considerable efforts. The work described in this paper was performed at the Jet Propulsion Laboratory, California Institute of Technology, under contract with the National Aeronautics and Space Administration.

TABLE 1. ADJUSTMENTS TO DATA SETS PRIOR TO COMBINATION

DATA SET NAME	BIAS (mas)		RATE (mas/yr)		UNCERTAINTY SCALE FACTOR				
	LAT	UTO	LAT	UTO	LAT	UTO			
LLR (JPL94M01)									
McDonald Cluster	2.296 (0.237)	0.903 (0.231)	-0.724 (0.046)	-0.111 (0.051)	1.379	1.189			
CERGA	-0.284 (0.179)	0.348 (0.096)	0.122 (0.037)	--0.060 (0.022)	1.799	1.301			
Haleakala	1.421 (0.275)	-0.627 (0.235)	-0.208 (0.180)	-0.065 (0.160)	1.530	1.788			
DSN (JPL94R01)									
CA-Spain Cluster	0.942 (0.072)	-0.328 (0.171)	-0.009 (0.016)	0.020 (0.039)	1.417	1.186			
CA-Australia Cluster	0.356 (0.050)	0.701 (0.147)	-0.250 (0.012)	0.018 (0.035)	1.465	1.219			
CDP (GLB973f)									
Westford-Ft. Davis	4.664 (1.839)	0.330 (3.183)	0.723 (0.371)	-0.191 (0.634)	0.363	0.769			
Westford-Mojave	0.443 (0.217)	0.723 (0.455)	-0.037	0.019	2.586	0.998			
CDP (GLB973f) PMX	PMY	UT1	PMX	PMY	UT1	PMX	PMY	UT1	
Multi	-0.435 (0.027)	1.690 (0.023)	1.074 (0.031)	-0.140 (0.007)	-0.060 (0.005)	-0.121 (0.007)	2.114	1.974	2.143
UTCSR (94L01) PMX	PMY	UT1	PMX	PMY	UT1	PMX	PMY	UT1	
LAGEOS	0.116 (0.023)	0.582 (0.019)	---	-0.058 (0.007)	-0.162 (0.006)	--	0.704	0.602	---
NOAA (19JAN95) PMX	PMY	UT1	PMX	PMY	UT1	PMX	PMY	UT1	
IRIS Inten.	---	---	1.110 (0.027)	----	---	-0.015 (0.007)	---	---	0.947
.....									
GPS (SIO93P01) PMX	PMY	UT1	PMX	PMY	UT1	PMX	PMY	UT1	
Scripps	-0.818 (0.035)	-1.508 (0.040)	---	-0.040	-0.002	---	1.899	1.915	---
GPS (JPL95P01) PMX	PMY	UT1	PMX	PMY	UT1	PMX	PMY	UT1	
JPL FLJNN	-0.246 (0.144)	0.455 (0.130)	---	0.028 (0.024)	-0.135 (0.022)	---	3.457	2.952	---
USNO (23FEB95) PMX	PMY	UT1	PMX	PMY	UT1	PMX	PMY	UT1	
IRIS Inten.	---	---	-0.239 (0.042)	---	---	-0.010	---	---	1.578

REFERENCE DATE FOR RATE ADJUSTMENT IS 1988.0

ATTACHMENT' 1

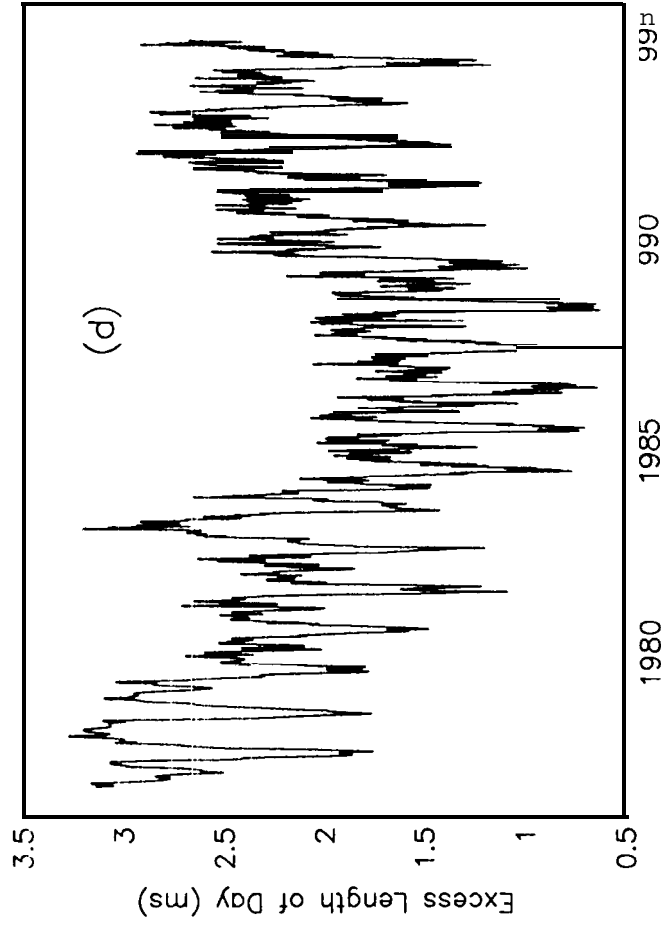
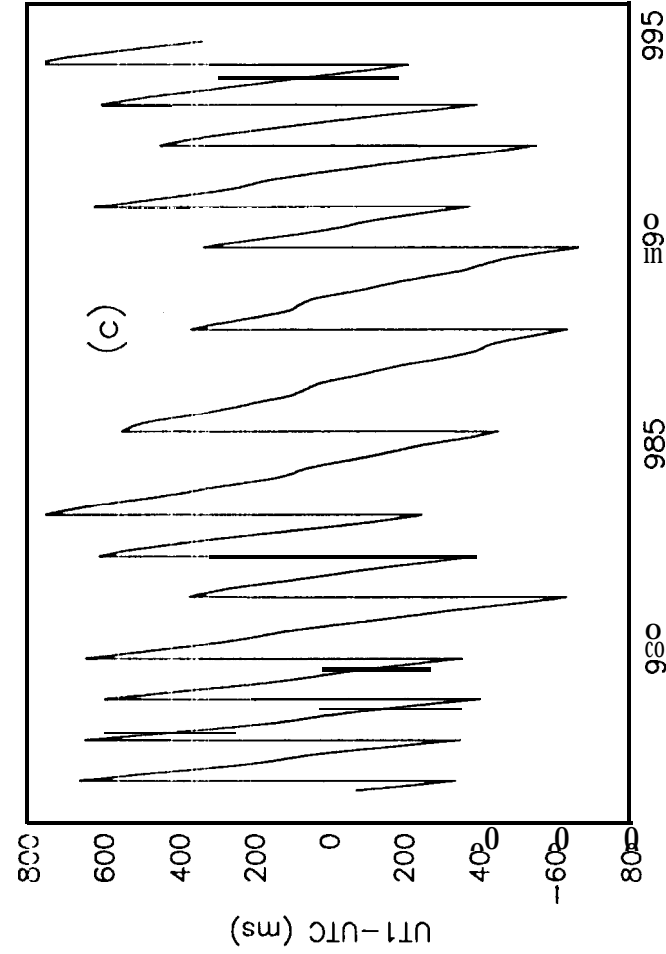
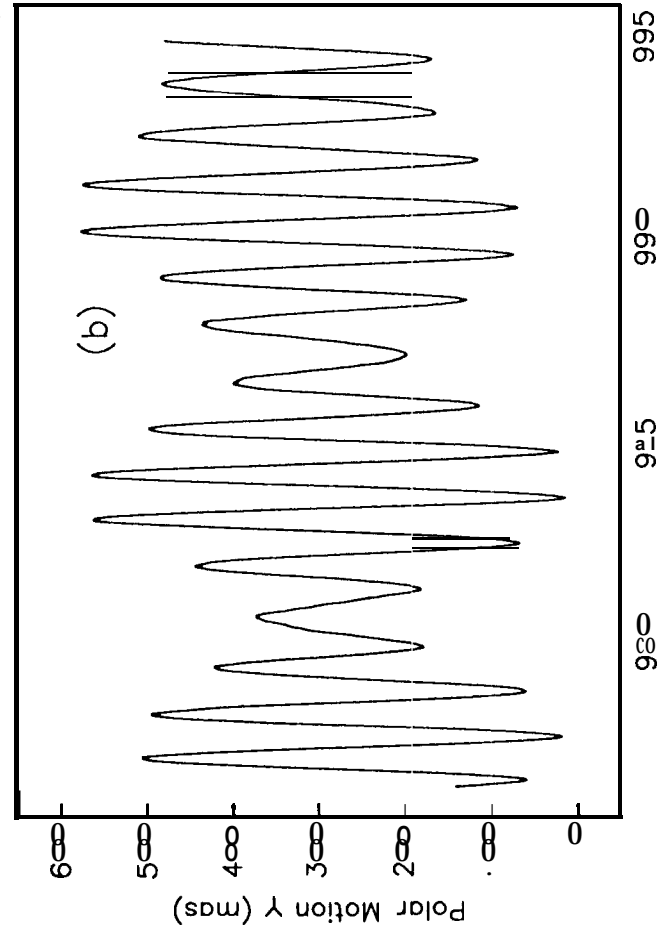
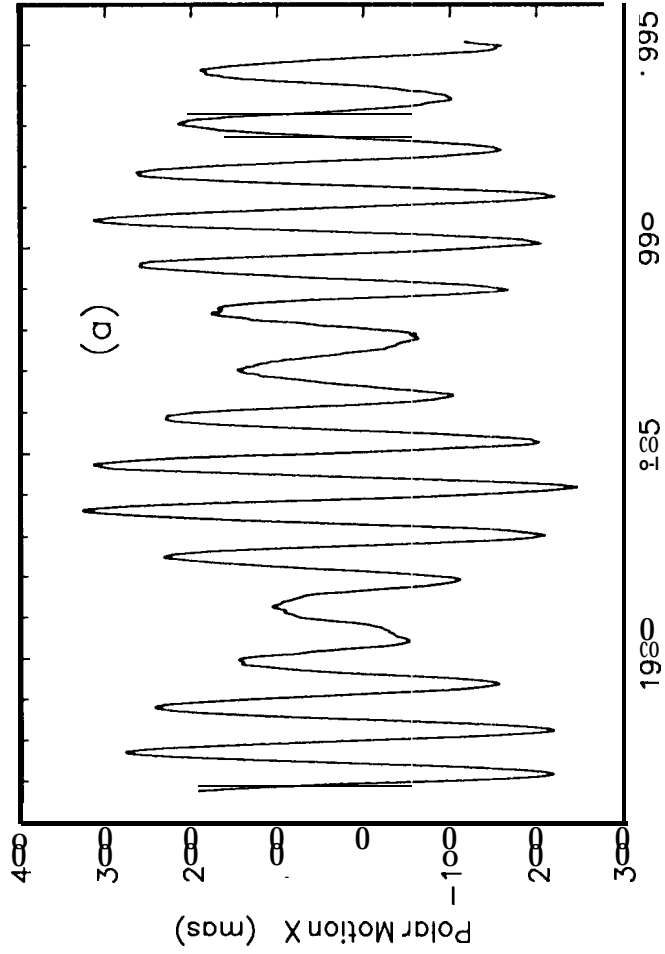
Technical description of solution JPL 95 C 01

- 1 - Technique(s) Combined
- 2 - Analysis Center: JPL
- 3 - Software used: Kalman Earth Orientation Filter (KEOF)
- 4 - Data span: Oct 76 - Jan 95 at 1-day intervals
- 5 - Celestial Reference Frame: Not Applicable
 - a - Nature:
 - b - Definition of the orientation:
- 6 - Terrestrial Reference Frame: Not Applicable
 - a - Relativity scale:
 - b - Velocity of light:
 - c - Geogravitational constant:
 - d - Permanent tidal correction:
 - e - Definition of origin:
 - f - Definition of orientation:
 - g - Reference epoch:
 - h - Tectonic plate model :
 - i - Constraint for time evolution:
- 7 - Earth orientation: EOP(JPL) 95 C 01
 - a - A priori nutation model: Not Applicable
 - b - Short-period tidal variations in x, y, UT1:

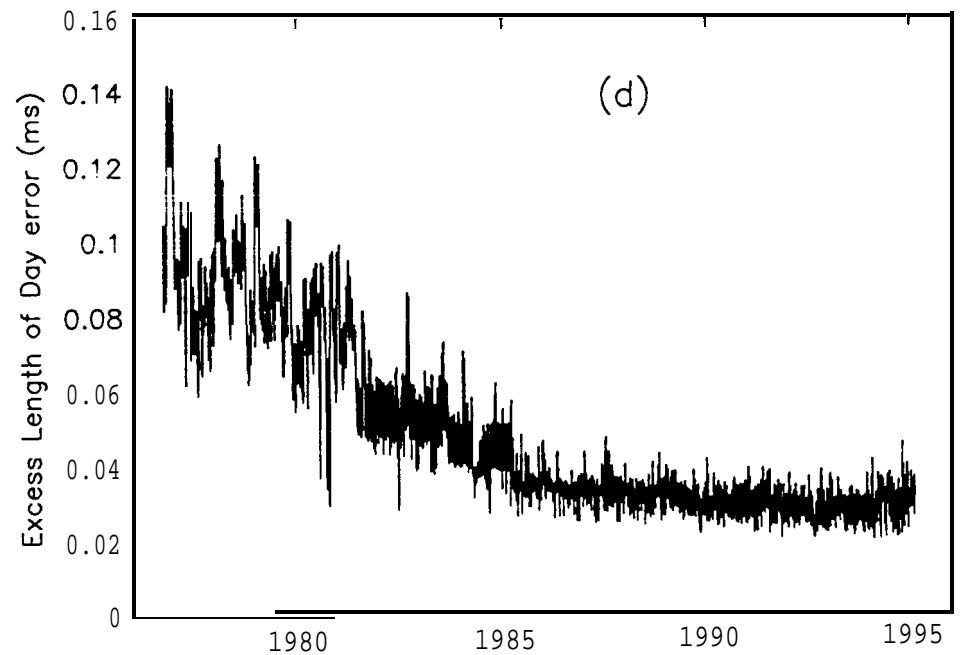
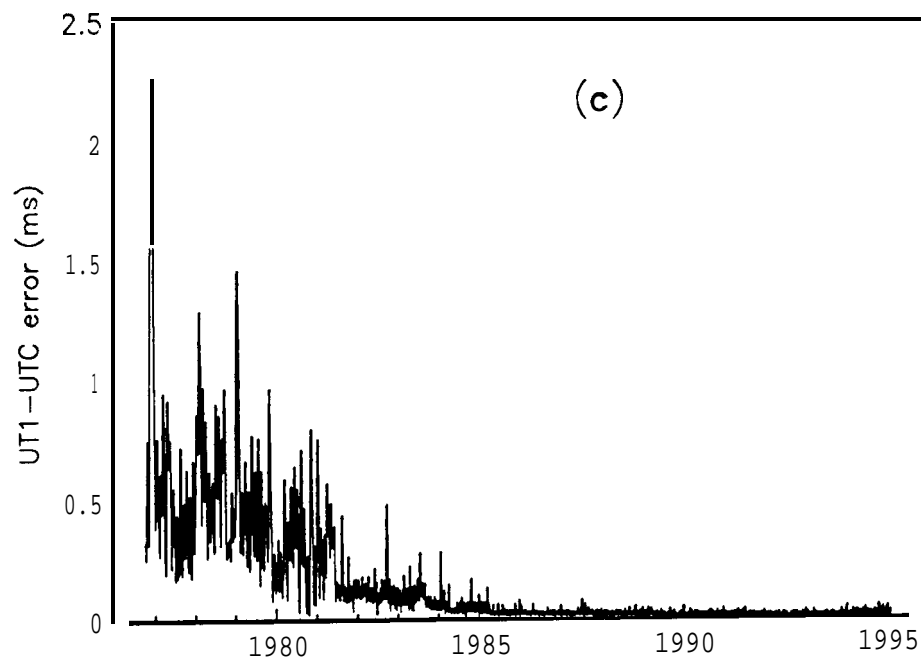
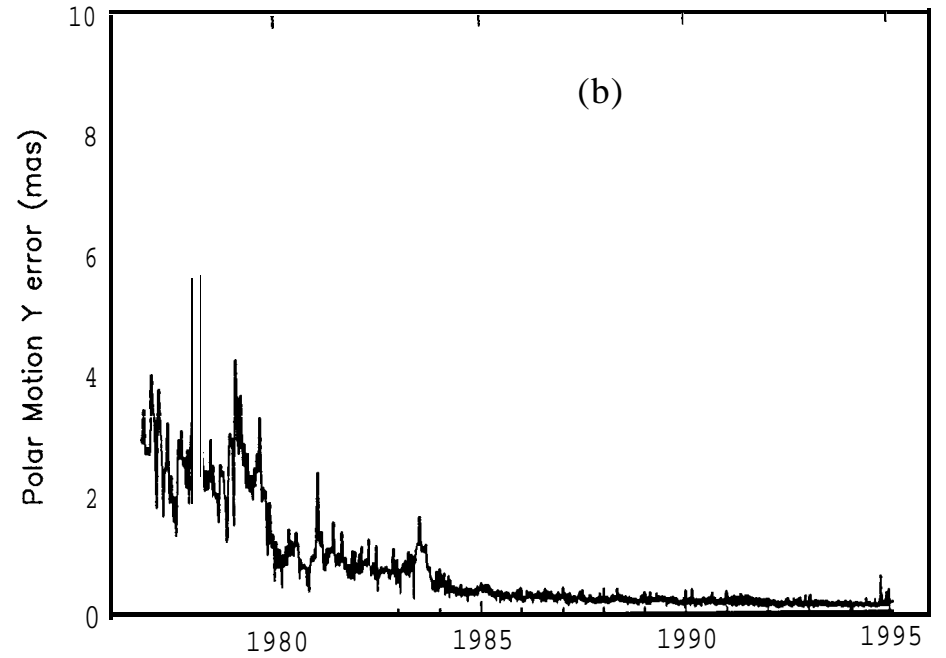
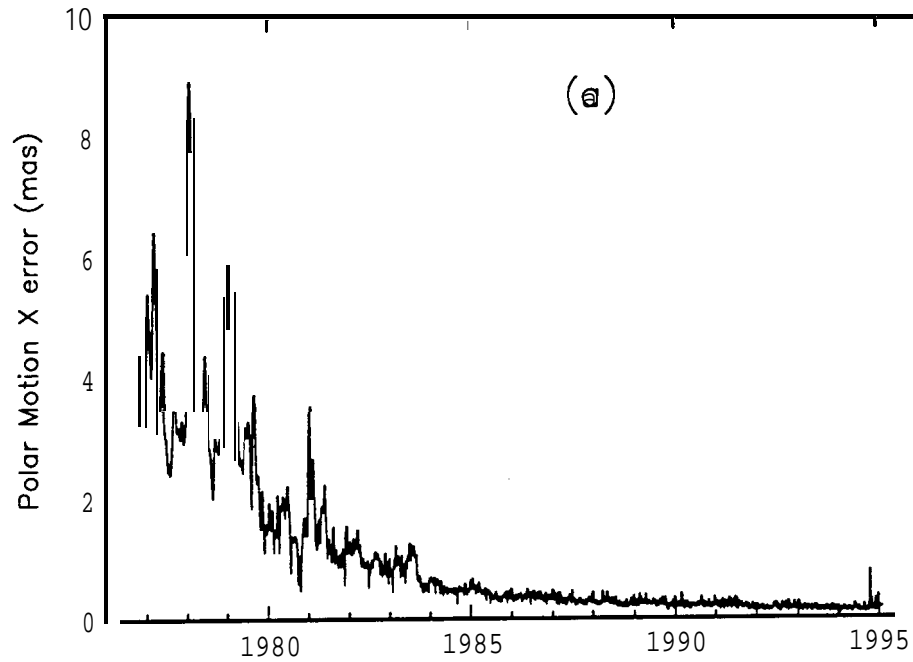
When necessary, the diurnal and semi-diurnal tidal variations have been removed from the individual EOP series prior to their combination into EOP(JPL) 95 C 01. The diurnal and semi-diurnal tidal terms have not been added back to the values reported in EOP(JPL) 95 C 01.
 - c - Definition of the reference frame:

EOP(JPL) 95 C 01 has been aligned with the IERS combined Earth orientation series EOP(IERS) 90 C 04 during 1984-1994 and is therefore given within that reference frame defined by EOP(IERS) 90 C 04.
- 8 - Estimated Parameters:
 - a - Celestial Frame:
 - b - Terrestrial Frame:
 - c - Earth Orientation: PMX, E'MY, UT1-UTC
 - d - Others:

COMBINED EARTH ORIENTATION SERIES: SPAC94



COMBINED EARTH ORIENTATION SERIES: SPACE94



EOP(IERS)90C04 MINUS SPACE94

