2.4. ON THE SECULAR VARIATION OF LATITUDE

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ABSTRACT

The relation between the secular variation in latitude and the secular motion of the pole is discussed.

RÉSUMÉ

On discute la relation entre les variations séculaires des latitudes et le mouvement séculaire du pôle.

Viewing the distribution of the ILS stations, Mizusawa and Gaithersburg and also Kitab and Ukiah are nearly opposite to each other in longitude, in pairs, respectively. Mizusawa and Ukiah are situated nearly 90° in longitude apart from each other. Carloforte lies between these Mizusawa- and Ukiah-lines, and near the x-axis, or the meridian of Greenwich. We have taken these two lines as a frame of reference to re-examine the relation between the secular variation of latitude at the ILS station and the secular motion of the mean pole from the following two points of view:

(i) Comparisons of the secular variations of latitude on the same line such as Mizusawa–Gaithersburg and Ukiah–Tschardjui (or Kitab).

(ii) Projection of the resultant vector composed of the relative velocities of the secular variations in latitude along Mizusawa- and Ukiah-lines on the meridian at Carloforte.

Dividing the whole period 1900–66 into five intervals, each of which covers about 12 years, we have put the above tests for each interval. Consequently we may conclude that a major part of the secular variation in latitude at any station would be caused by the secular motion of the mean pole, but the remaining part would be attributed to the crustal movement of the station or the local change in the plumb line at the station. Moreover, we have noticed the fact that conspicuous local non-polar variations along Mizusawa-line give opposite phase to those along Ukiah-line with about 19 years' period. The details about these variations will be published in the near future.

Comparing the results of latitude observations made at Tokyo and Tientsin with those made at Mizusawa for the recent period, Orlov mean latitudes at these stations give fairly similar variations for the period 1959–63. Therefore, no noticeable relative motion seems to exist between Japan islands and Asian continent. We may consider at present that Japan islands tend to move regionally together with Asian continent.

Markowitz and Guinot (eds.), Continental Drift, 44.