

M.L. Smith: It is important to maintain a distinction between compositional models and dynamic models. Compositional models are lists of various Earth properties, such as density and the Lamé parameters, as a function of radius. Modern geophysical Earth models are constructed to fit of order a thousand data. Modern wobble calculations, such as Shen's or mine, use modern compositional models.

Dynamic modeling is the method we use to account for the generally intractable physics of rotating, realistic Earth models. In general, the calculations of Molodensky, Shen, Smith, and Sasao are all of a family, although the latter three are more general (the latter authors had larger computers).

Early studies used very simple compositional models such as a rigid mantle and a homogeneous incompressible fluid core, and exploited rigorous analytical dynamic models. Modern studies are not allowed this luxury. Nevertheless, so far as we can tell, our current dynamic models are more than adequate.

K. Yokoyama: The observed phase lead of the 18.6 year nutation is very small, according to the analysis of the IPMS z-term (1962-1976); i.e., less than 0".002.

F.A. Dahlen: I'd like to understand correctly the essential nature of the mechanism described by Prof. Sekiguchi. Is it simply that the magnetic boundary layer which is dragged along by the wobbling mantle increases the effective moment of inertia A_m of the mantle, so that the Chandler period, which is given approximately by $T = A_m / (C - A - \kappa a^5 \Omega^2 / 3G)$ sidereal days, is increased?

N. Sekiguchi: That is substantially correct.

J.D. Mulholland: A graph in the paper of Dr. Kolaczek *et al.* showed large, simultaneous changes (and with opposite sign) at Washington and Richmond. These two stations are under the same management. Is it possible that this effect is simply a reflection of a change in program stars?

W.J. Klepczynski: New catalogues, i.e., positions and proper motions, for the PZT stars of both Washington and Richmond were introduced about this time. One should be careful to make sure that the observations used in the analysis have all been reduced using the same catalogue.

K. Yokoyama: As for the data of Washington and Richmond, the Central Bureau of the IPMS has not received the revised data due to the change of the star places. Therefore, the mean latitudes based on the published data may have suffered from the change of the star places.

N.P.J. O'Hora: When only one instrument operates at an observing site, if there is a sudden change in the results, it is difficult to say whether the change has occurred in the observed quantity, in the observing instrument, or in the environment.

As a person who operates a PZT within 6 km of the sea shore, I would like to disbelieve some of the deductions made by Dr. Kolaczek.

R.O. Vicente: I should like to emphasize the importance of the researches on mean latitudes of stations situated on common meridians. The results presented should be improved for a better understanding of the local geophysical conditions of the stations, for instance, atmospheric influences.

V.I. Sergienko: Concurrent observations with two astrolabes in Irkutsk conducted over a period of 10 years show that changes of the mean latitude are mainly due to instrumental errors.

A.M. Kalmykov: The same conclusion may be obtained by considering concurrent observations with two zenith telescopes at the Kitab International Latitude Station. Though the program is common for both instruments, variations of the mean latitudes are quite different.

P. Melchior: There is a constant tradition in classical geodesy and astronomy that one should use a group of three similar instruments for the fundamental measurements (i.e., base measurements, time keeping). As long as this is not achieved, the interpretation of residuals is illusory and one can suspect that they are of purely instrumental origin.

E.P. Fedorov: Some fifty years ago Prof. A.Ya. Orlov took notice of divergence in variations of the mean latitudes of stations situated (approximately) on a common meridian. He considered this fact as a decisive argument in favour of the opinion that variations of mean latitudes were of non-polar origin. Recently this argument has been strengthened by N.T. Mironov.

All information on the secular polar motion is obtained from observations at four stations: Carloforte, Ukiah, Gaithersburg and Mizusawa, for observations at Kitab commenced in 1930. We may not merely admit but assert as highly probable that the mean latitudes of the ILS stations are also liable to substantial non-polar changes. This makes unreliable any conclusion on the secular polar motion based on observations at the four international latitude stations only. In addition, I do not know what statistical criteria may be used to check the existence or non-existence of the secular polar motion if only such scanty data are available.