Comparison between the variations of the length of day (LOD) and Polar motion and the results of Atmospheric excitation at different frequency domain

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Using the data series of atmospheric angular momentum (AAM) function (1982.09 – 1992.09) provided from the Japan Meteorological Agency (JMA) the values of the global effective atmospheric excitation in the length of day and polar motion ($m_1^{'}, m_2^{'}, m_3^{'}$) were computed in this paper. The comparison between the earth orientation parameters, m_1, m_2, m_3, which were derived by JPL with various data of new techniques and are called Space 92, and $m_1^{'}, m_2^{'}, m_3^{'}$ were made at different frequency domain.

It is shown that the coincidence between $m_1^{'}, m_2^{'}, m_3^{'}$ at Chandler and seasonal frequency domain is very well. The correlation coeffcients and energy coincidences are over 0.98 and 0.96 respectively while those are worse at low frequences of intra-annual and high frequences below one month.

It is also shown that the law of causation between AAM excitation and variation of earth rotation at different domains is not coincident from correlation delay. May be there are other geophysical processes acting on the solid earth.