



Another type of lunisolar influence on weather

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Possible solar modulation of semilunar variation in precipitation is detected in 13 European 100-year datasets (1901-2000), available from ACA&D project. A two step approach is followed. First, monthly precipitation series were created with respect to the lunar phase and analysed by method of superposition of epochs. For every single year in period 1903-1998 a matrix of 61-62 synodic series was composited, ranging two years before and after the middle year. Second, similarity of the vector of 29 means to the Bowen's signal (simple semilunar cosines wave, shifted by 4 days) was measured by correlation coefficient and plotted against time. The resulting series exhibit probable Hale-cycle modulation, in agreement with the pilot study for Prague, with apparent phase lags for specific stations across the continent. The lunar signal has been previously identified in many types of meteorological parameters and also the set of proposed explanations was wide. The solar influence was believed to be via Moon's reflection of solar radiation, thermal and gravitational tides or through Earth's motion around the barycenter. Because of presented involvement of solar magnetic cycle we recently proposed another null-hypothesis linking Sun, Moon and Earth: changes in orientation of solar magnetic field - different types of interaction with magnetic fields in Solar system during even or odd solar cycles - modulation of ionosphere by the Moon - semilunar variation of global electric circuit - changes in CCN formation - lunar variation of precipitation.