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Late Holocene hydrometeorological variations and solar activity.

Frequent and rapid climate fluctuations have occurred throughout the Holocene with various periods of Earth warming and cooling.
The Sun is the most driving force for causing climate change. Much of the Sun energy evaporates water and causes atmospheric convection. Solar radiation, general circulation of atmosphere, geographical location of continents and oceans and the largest forms of a relief are the primary factors influencing on climate of lands.
Helioclimatological database can help to climatology in theoretical identification of kinematical components of climate and to develop theoretical basis of climate prediction.
The instrumental records of air temperature, precipitation and river discharge over the past 250 years show close interrelation with solar activity.
Air temperature in dependence from solar activity over the period 1755-1996 can be described by following equations:
In Berlin (Germany):
T° = 0,02W + 8, 05, r = 0, 76:
In Central England over the same period:
T° = 0,011W+ 8, 775, r = 0, 76,
- where: T° - temperature of airW-sunspot numbers, r- coefficient of correlation.
In Basel (Switzerland) and Karlsruhe (Germany) relationship between solar activity and air temperature is slightly less and equal to r =0, 72.
T° = 0, 01W+8, 32 - Basel over the period 1755-1964;
T° = 0,02W+ 9,25 - Karlsruhe over the period 1833-1996
Link between solar activity and precipitation depends on a geographical location of observed station.
Precipitation in Karlsruhe (Germany) was calculated as:
P = 2,81W+ 646,68, r= 0, 72
In Kew Gardens (England):
P = - 0,79W + 654,92, r=0,72
- where: P - precipitation in mm, W-sunspot numbers, r- coefficient of correlation.
Discharge of the Thames River (England) from solar activity in different averaged cycles of solar activity over the period 1913-1996 is calculated as following:
$Q = 0,0005W^2 - 0,0683W+ 4, 6796, r = 0. 77;$
where: Q - discharge of the river in cu. km/year, W-sunspots number, r - coefficient of correlation.