



Unexplored sources of Turkish climate data

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Climate change is brought about by the complicated interactions among the atmosphere, the oceans, the cryosphere, the surface lithosphere and the biosphere, which comprise the climate system. Climate changes being extremely complex and totally global in its nature, cooperative activities with international and interdisciplinary programs are indispensable for monitoring and predicting climate change and disseminating reliable information on it.

Unexplored climate data is very important historical value and need to be digitize in order to detect climate change over historical time period in Turkey. Turkish State Meteorological Service (TSMS) was founded 1929 and before this date there are some old volumes recorded in the Ottoman Empire are as follows: Three climate books for Istanbul from 1896 to 1914 can be found in the meteorology museum in Ankara. They are in Ottoman language and need to be translated and then digitized. European 6th framework project (MACE) included this task as WP 4.5. This project passed all evaluation but not approved yet as financially. French Meteorological Service has some volumes in Bureau Central Meteorologique, 1869- >: Bulletin International XIII-XXV Annee, Jan 1-Dec 31, Paris, France. There should also be old daily data available for Izmir. Purser, E., 1875: Meteorological Table of Smyrna for the years A.D. 864-74. The other Turkish locations that should have full records somewhere are Samsun, Sinop, Trabzon and Diyarbakir. These examples show that there is the potential to recover early data for the above sites in Turkey.

Some of the pressure data are already presented and available in ACRE Project at <http://www.cdc.noaa.gov/Pressure/> and <http://www.hadobs.com/> which are: Istanbul (EMULATE) 1866-1880 [daily] (Hadley Centre) 1847-1848; 1854 [monthly] (ADVICE/CRU, UEA, Phil Jones) 1856-present [monthly], İzmir (Hadley Centre, Rob Allan) 1864-1873; 1890-1899; 1906-1994 (gaps) [monthly]

Another source of proxy data are speleothems which they can be found many caves located over Anatolia. In order to establish a reliable paleoclimate signal from speleothems, it is vital that to calibrate contemporary calcite deposition with the present day “cave climate”. A comprehensive calibration program must be applied including timing and collection of cave drip waters. Automatic stations must be installed to record variation in cave temperature, relative humidity, pH and conductivity. This will allow to link contemporary calcite deposition with the cave climate and further link to recent meteorological data thus calibrating the modern isotopic signal which will then allow interpreting paleoclimate signal. A multi-disciplinary research project (ENVNET) is investigating environmental change in Northeast Turkey. Details are representing at <http://www.gees.bham.ac.uk/research/ENVNET/>

After the reconstruction of past climate data, it will be possible to run RCLimDex software to generate climate indices and to detect climate change from historic time to the present. One study has undertaken for the Middle East and published at: <http://www.agu.org/pubs/crossref/2005/2005JD006181.shtml>