



Societal responses to political and climatic changes in Babylon in the First Millennium BCE.

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The *Astronomical Diaries and Related Texts from Babylonia* (Volumes I-III) provide sub-daily precisely dated meteorological observations recorded by *ṽpšūtu* (Akkadian for scribes) who were expert astronomers conducting a programme of observation spanning many centuries. Thanks to their use of clay as a medium, 209 (known) tablets survived, were excavated, translated and published, providing a unique window into the climate in the first millennium BCE.

A focus of the Irish Research Council-funded CLICAB Project (Climates of Conflict in Ancient Babylonia) is on deriving historic climate data from the translated tablets. Information has therefore been categorised into 50 unique keys, 24 of which refer to meteorological and related phenomena. This has facilitated the extraction of over 230,000 rows of observational data. Initial findings afford insight into the impact that ruling elites (and changes in governing regimes) had on the recording of observations, and therefore the availability of data with which to analyse past climate; but also on how mitigation strategies were implemented to improve (not always successfully) daily life.

For the Ancient Babylonians the ruling elite (of Babylonia or neighbouring regions) could act as a key facilitator in promoting socio-economic viability in an often challenging environment through for example, the division of land for food production, as noted in the diary which remarked that fields were given “in year 32 at the command of the king for sustenance for the people of Babylon” (April 273 BCE).

However the monarch could also act as an obstacle to societal environmental resilience. An example presented in the diaries highlights the use of water as a tool of conflict in an attempt to take over the kingdom (119 BCE). The diaries record Euphrates River level heights which may provide a longer time series than is available for the contemporary period due to ongoing and contentious hydro-politics in the region today (Travis et al., forthcoming; Kirschner & Tiroch, 2012).

There is also abundant evidence of the climatic impacts from major explosive eruptions in the diaries, the dating of which is now known thanks to recently revised ice-core chronologies (Sigl. et al., 2015), e.g. “the cold became severe” from the 8th-15th January 247 BCE. The combination of precisely dated meteorological information and river levels, alongside evidence of volcanic induced perturbations, and historical or “event” data are a distinctive characteristic of the diaries.

This combination enables a deeper understanding into societies of the First Millennium BCE and their adaptive capacity when faced with changing political regimes and climates.