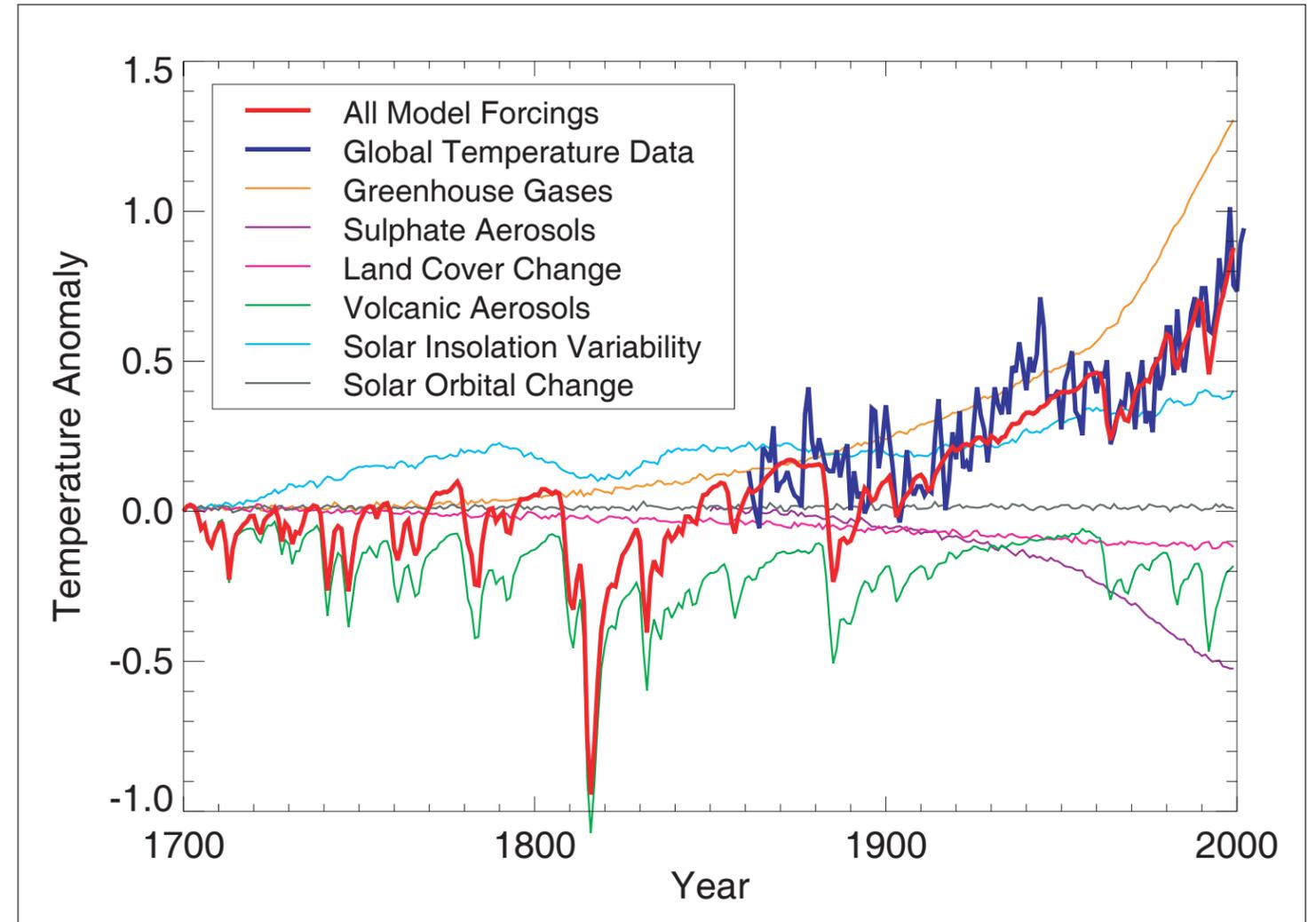


# Climate Modelling at the University of Victoria

Recent Research by the UVic Climate Modelling Group includes the following questions and topics.

- **How** do changes in land cover affect the climate?
- **What** is the effect in the North Atlantic to changes in sea ice export from the Arctic Ocean?
- **Has** there been a human influence on atmospheric pressure at the surface of the Earth?
- **Can** we detect the influence of humans on the climate?
- **Including** tidal mixing in a numerical model of the ocean circulation.
- **Modelling** the dynamic ice cover of the "Snowball Earth".
- **What** happens to the carbon cycle in the ocean during abrupt climate change?
- **Simulating** Heinrich Events (rapid discharge of glacial ice into the ocean) with the UVic ESCM.
- **Are** there better ways to represent sea ice processes in climate models?
- **What** were the causes of glacial inception 116 thousand years ago?
- **What** does changing the way we model sea ice do to the simulated climate?
- **How** does stochastic (random) forcing affect the climate, both modelled and real?
- **What** role did climate change have in human evolution and human migrations?



This figure shows how the average global atmospheric temperature in the UVic Earth System Climate Model changed, in one set of experiments, as a function of time from 1700 AD to the present. Several different kinds of observed historical forcing (see plot legend) were used individually and in unison to illustrate how the observed temperature anomaly (heavy blue line) can be modelled only by including them all (heavy red line). This also illustrates one of the strengths of the UVic model. Because it is relatively inexpensive to run—that is, it does not require prohibitive computing resources—we are able to perform many experiments to more thoroughly explore the Earth's climate and methods of modelling it.