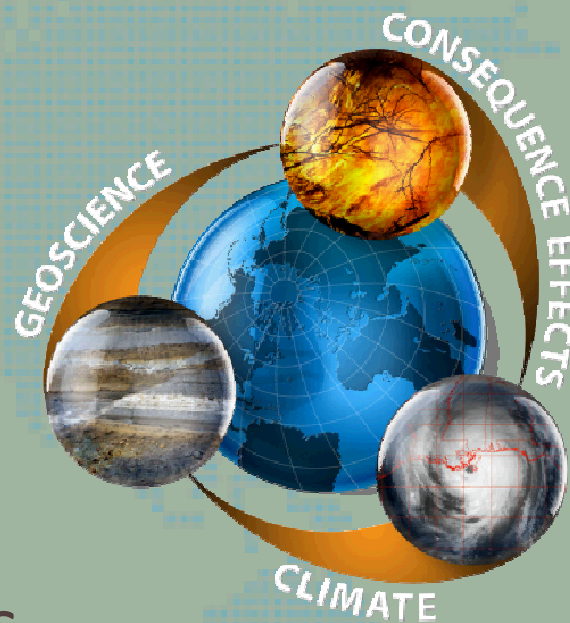


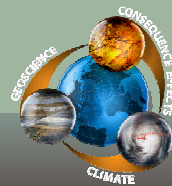
DETERMINATION OF THERMAL CONDUCTIVITY IN HALITE FROM -75°C TO 300°C

Stephen Bauer
and
Alexander Urquhart

Geomechanics Department
Sandia National Laboratories
Albuquerque, New Mexico, USA

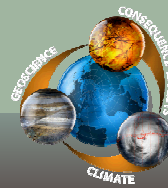


Motivation

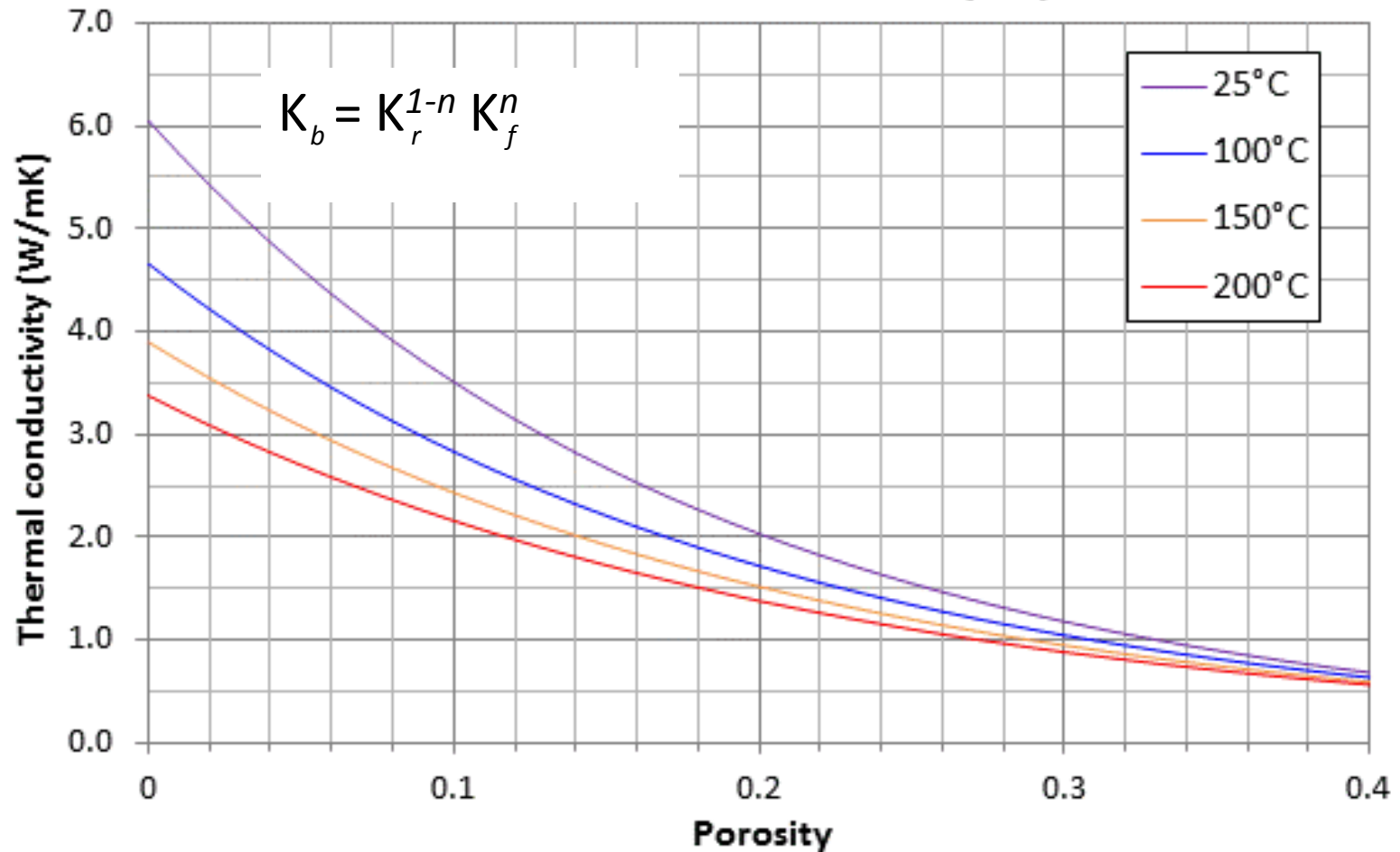


- High Frequency Gas Cycling
- High Level Nuclear Waste Disposal

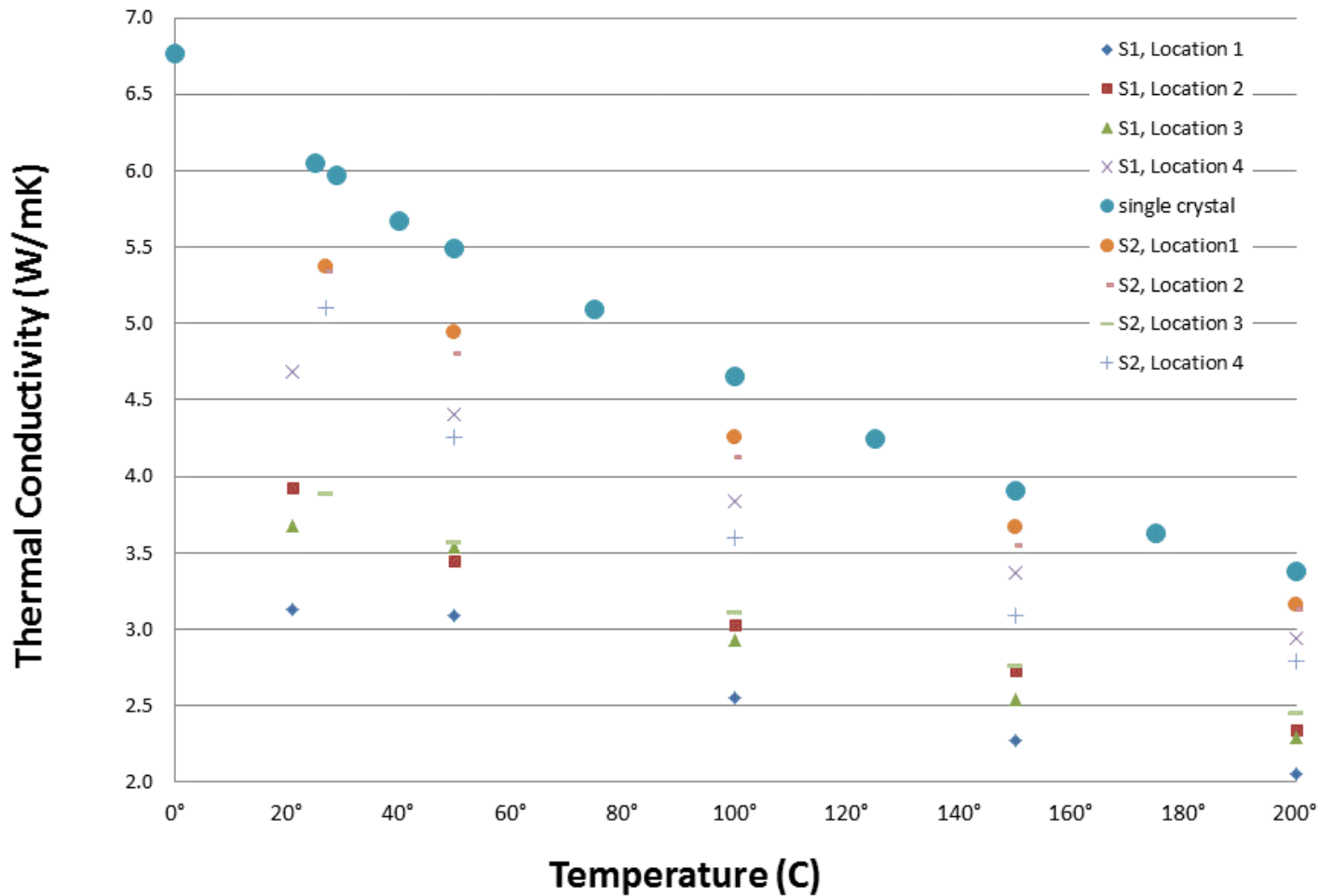
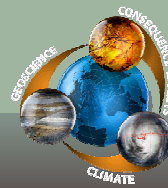
Porous salt model



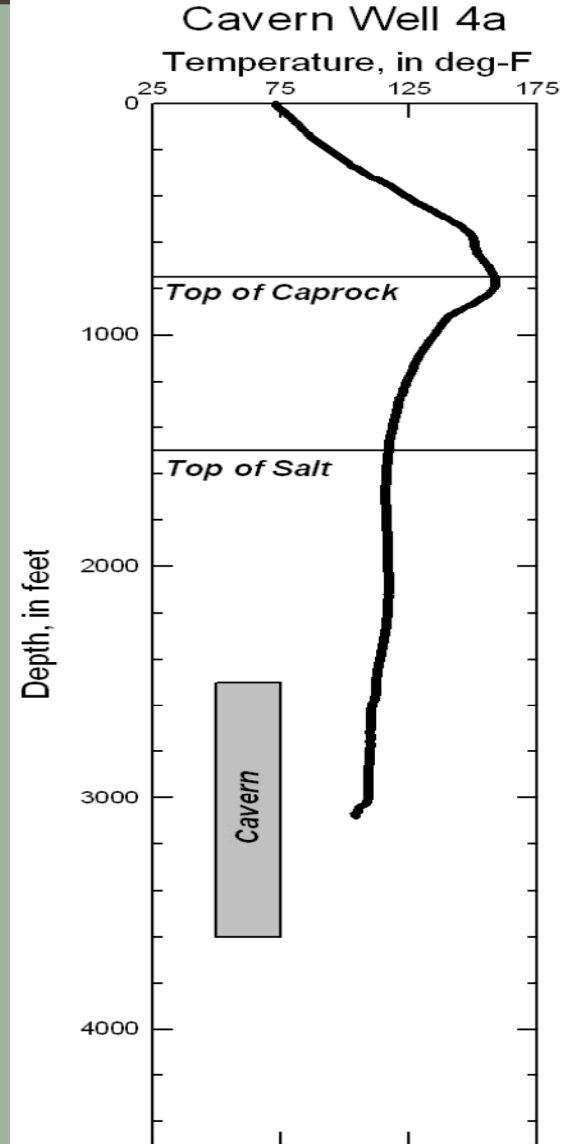
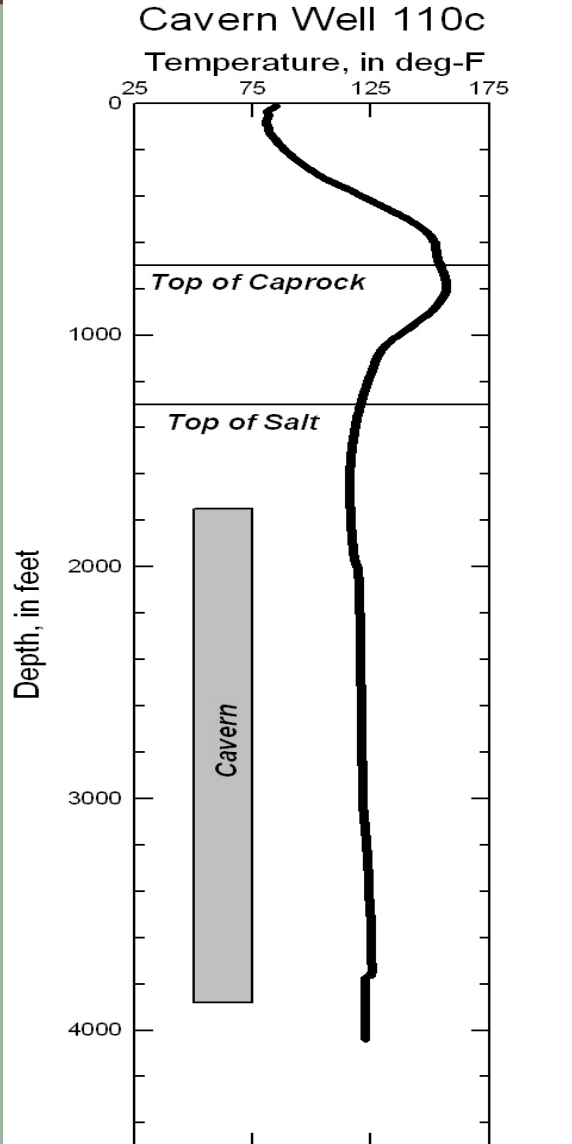
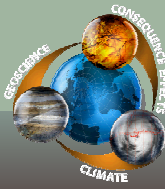
Estimated thermal conductivity of porous salt



Introduction

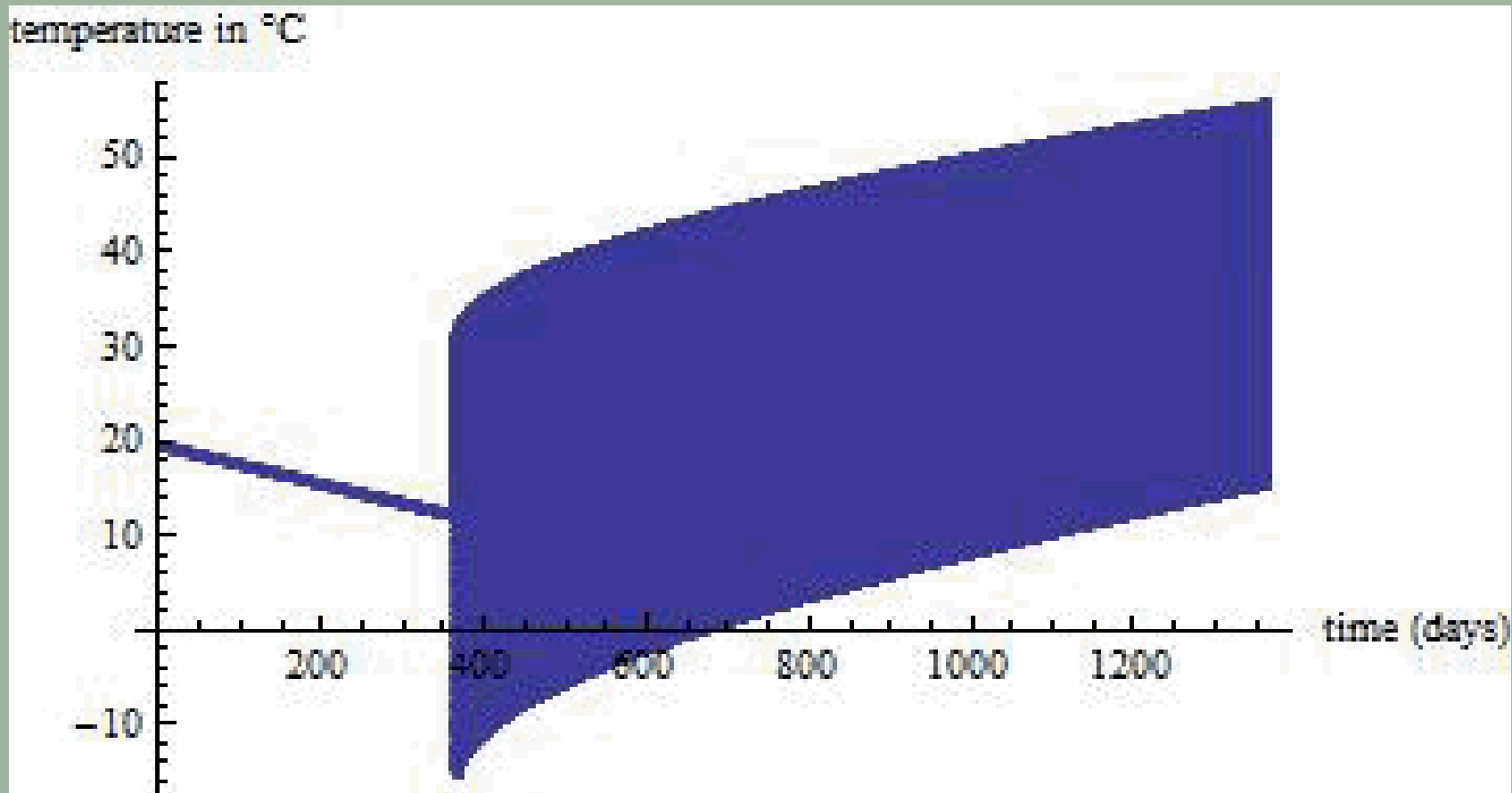
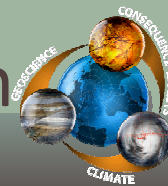


Temperature profiles of 2 Bryan Mound cavern wells (2001)



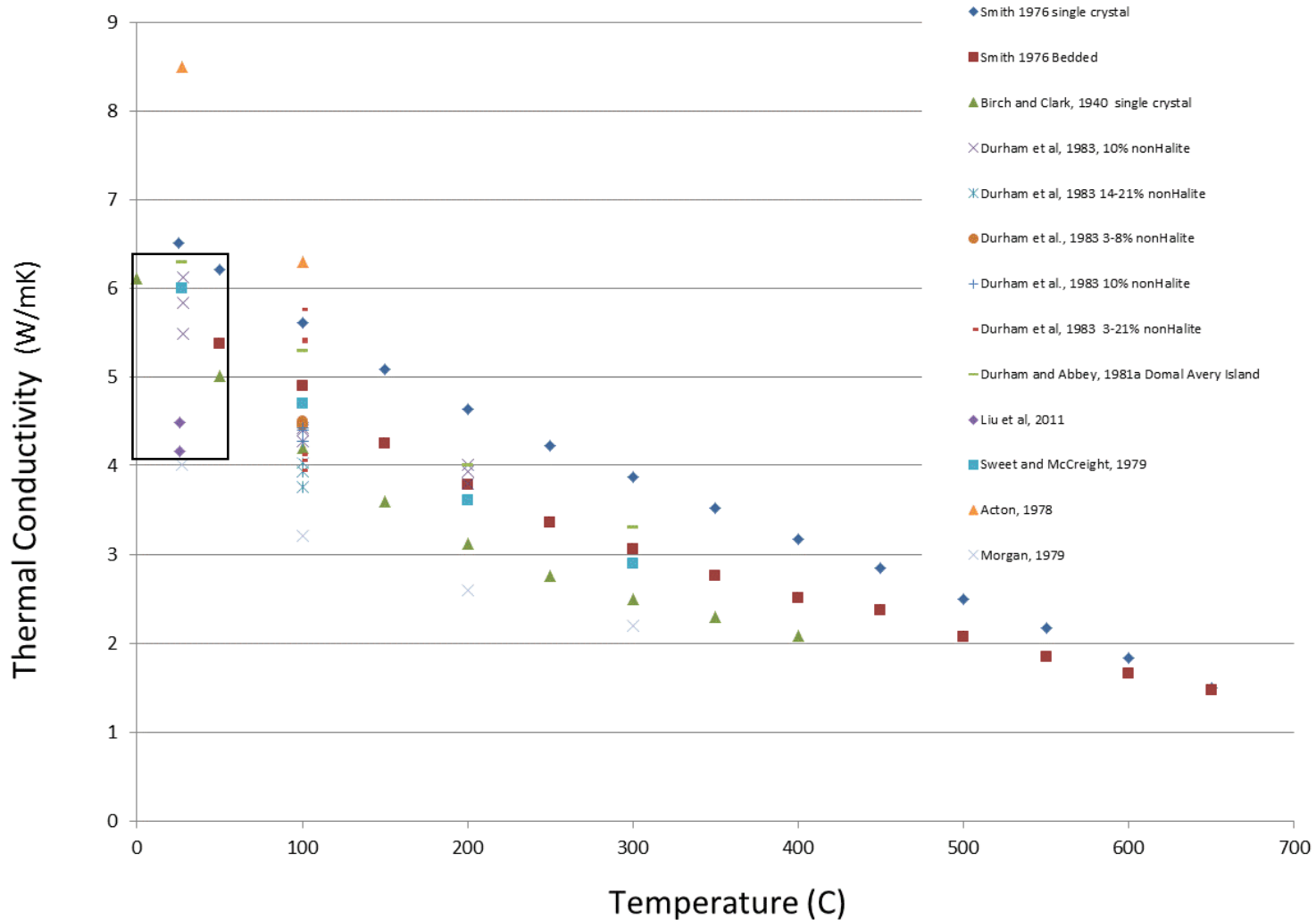
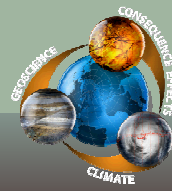
Sattler et al, 2006)

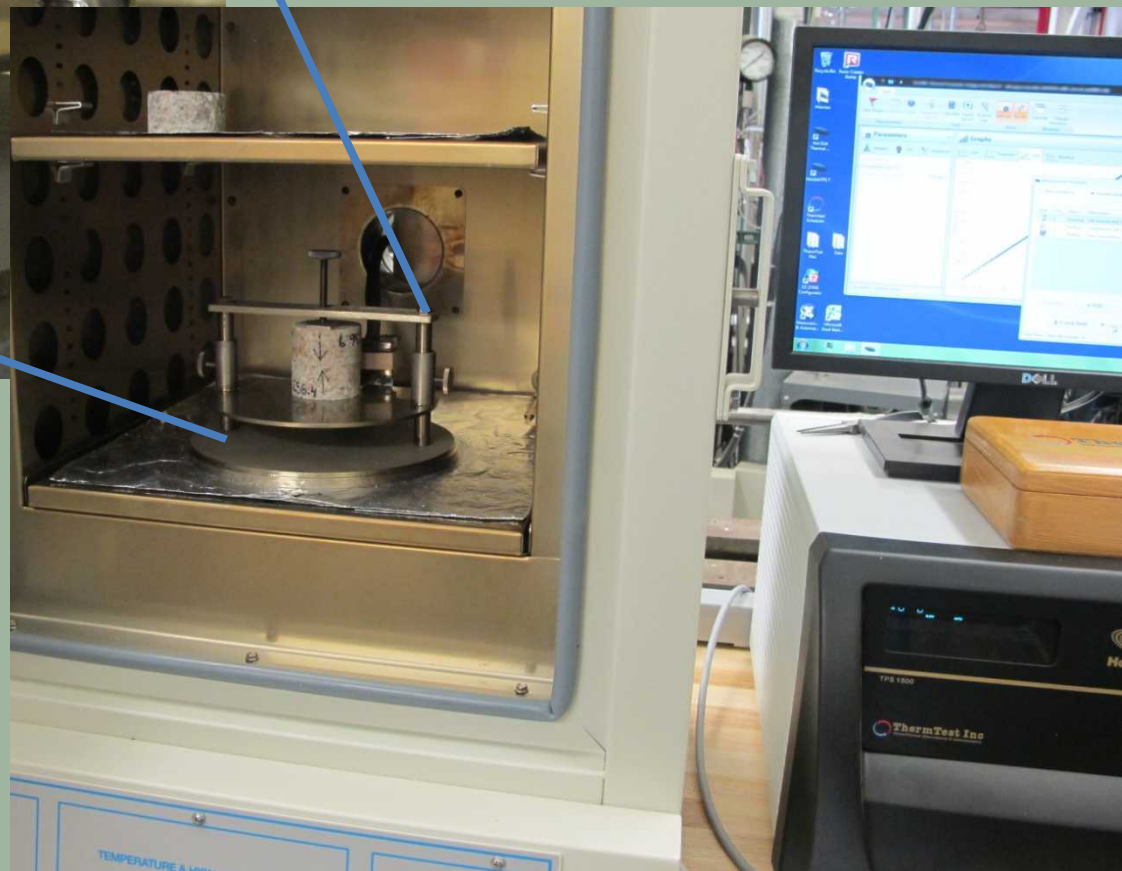
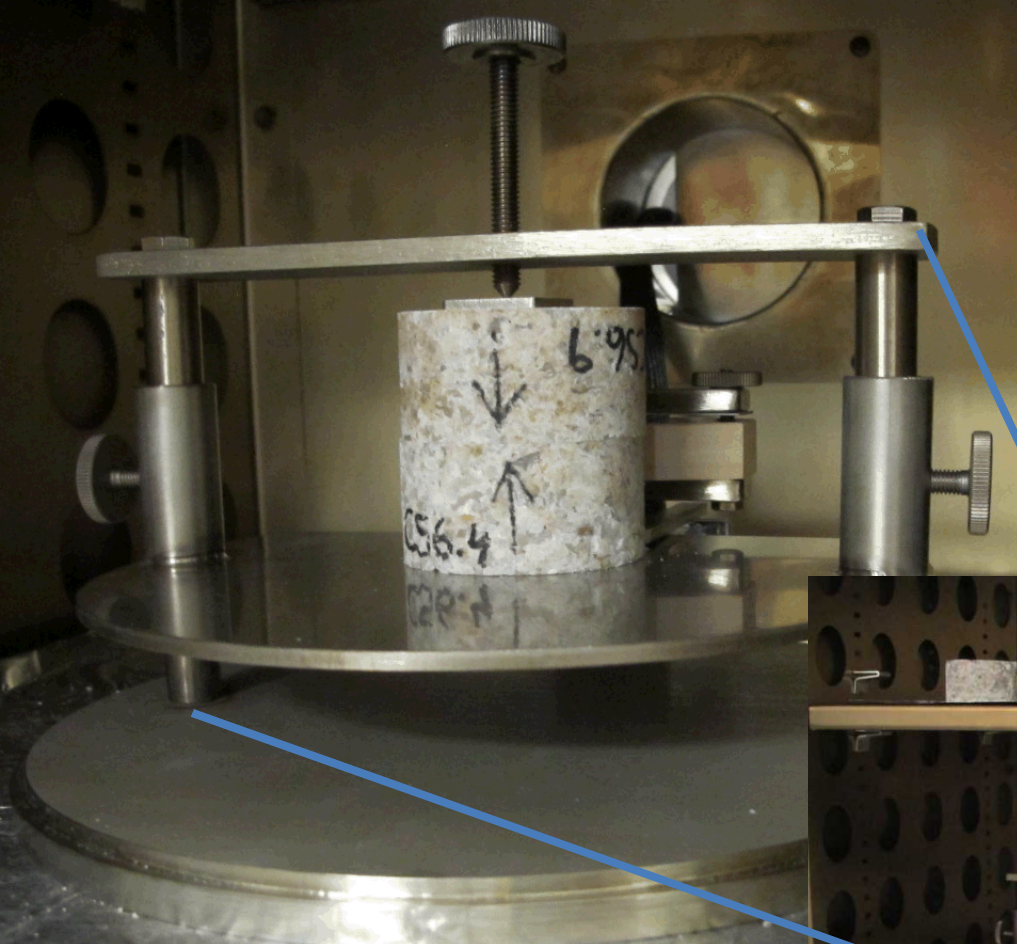
Gas temperature evolution in a 1500-m deep cavern



(From Lestringant et al 2010).

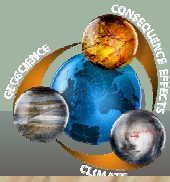
Summary of thermal conductivity data from previous work

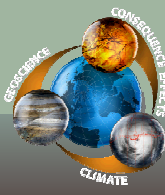




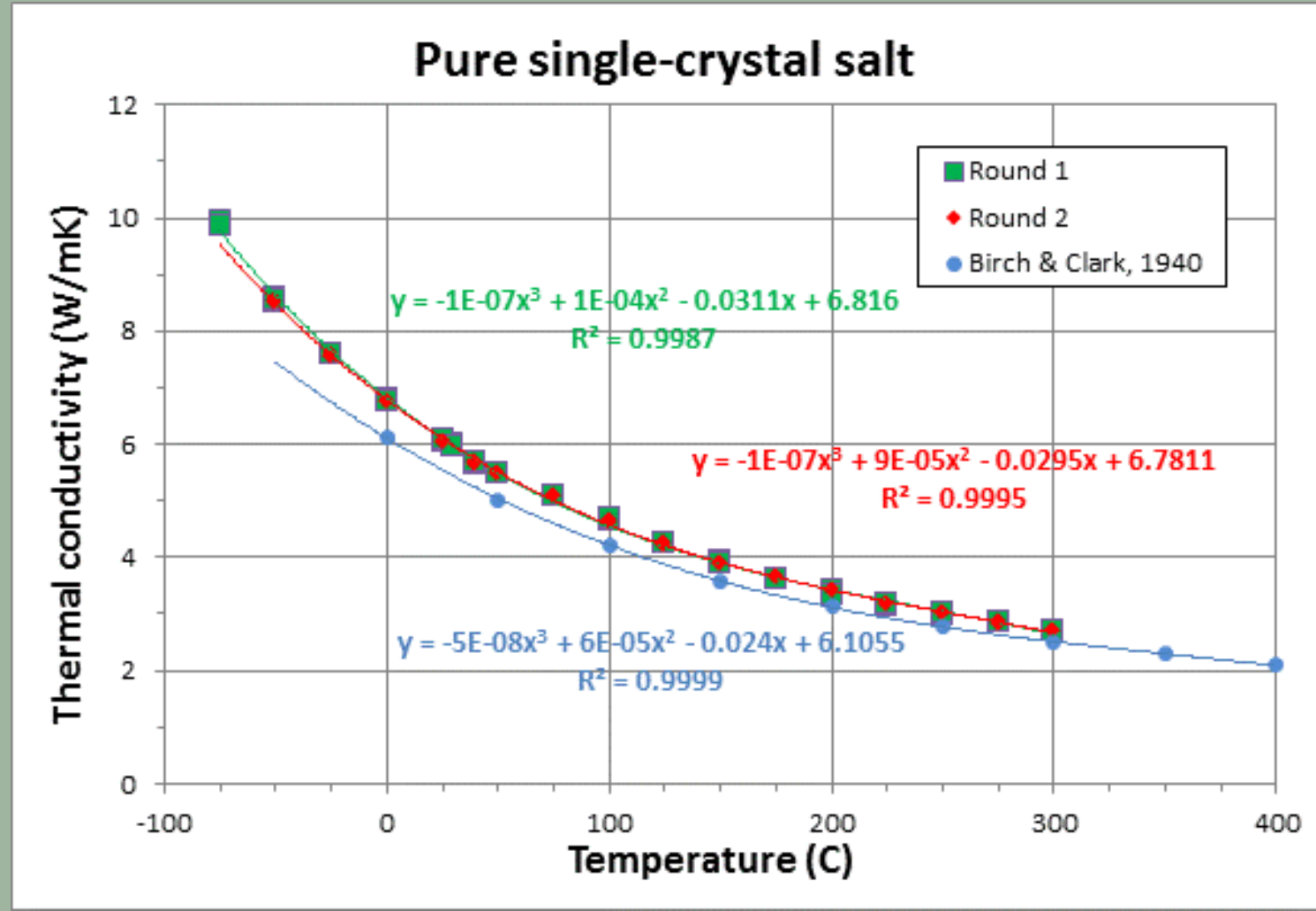
Thermal
conductivity
device

Single Crystal Sample





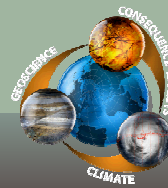
Thermal conductivity of single-crystal halite



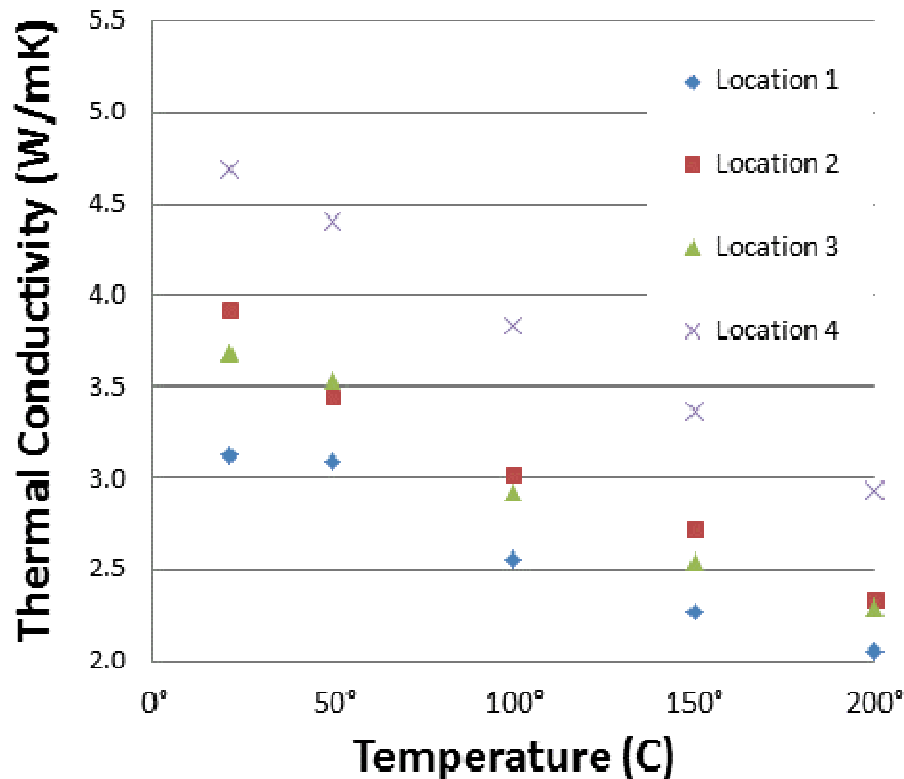
Fractured bedded salt samples 1, 2 with locations of thermal conductivity measurements



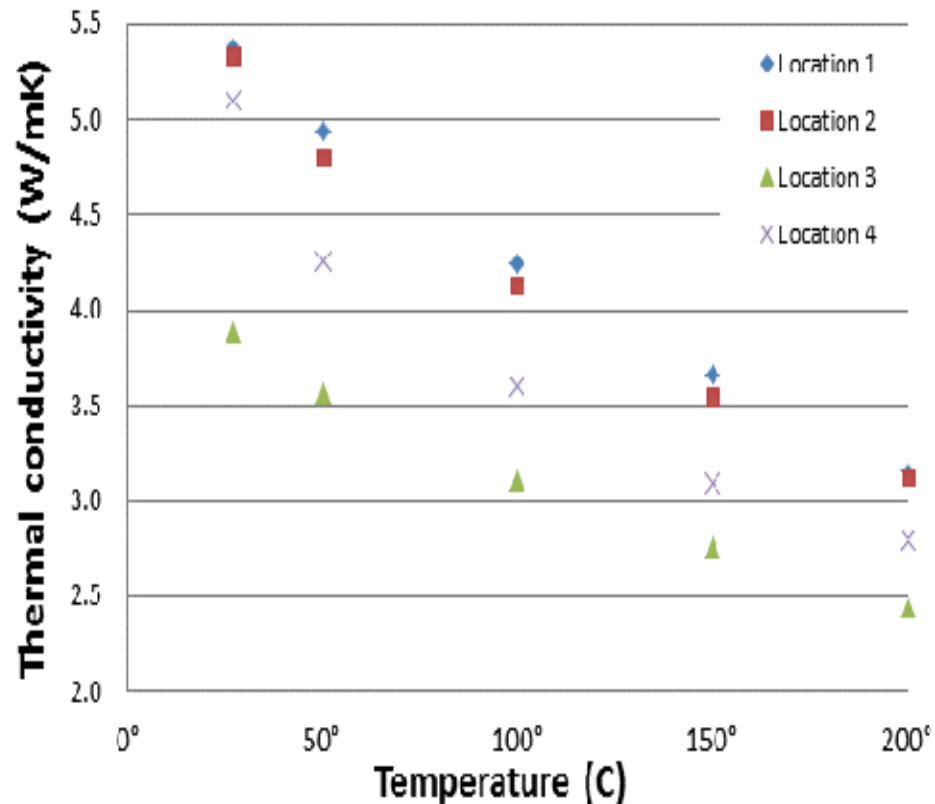
Thermal conductivity of fractured salt



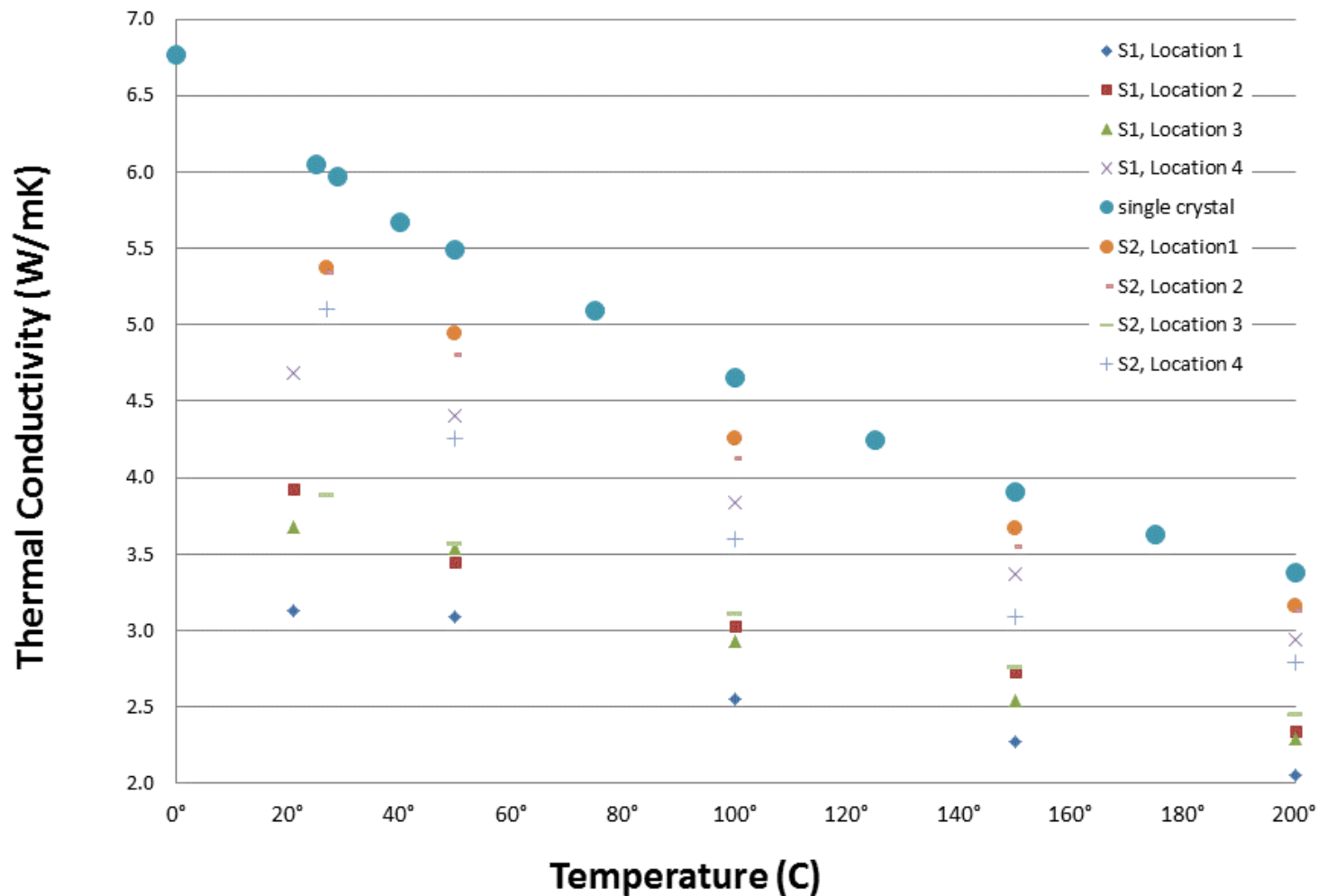
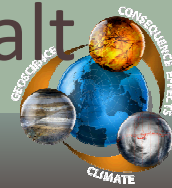
Thermal conductivity: WIPP salt, Sample 1



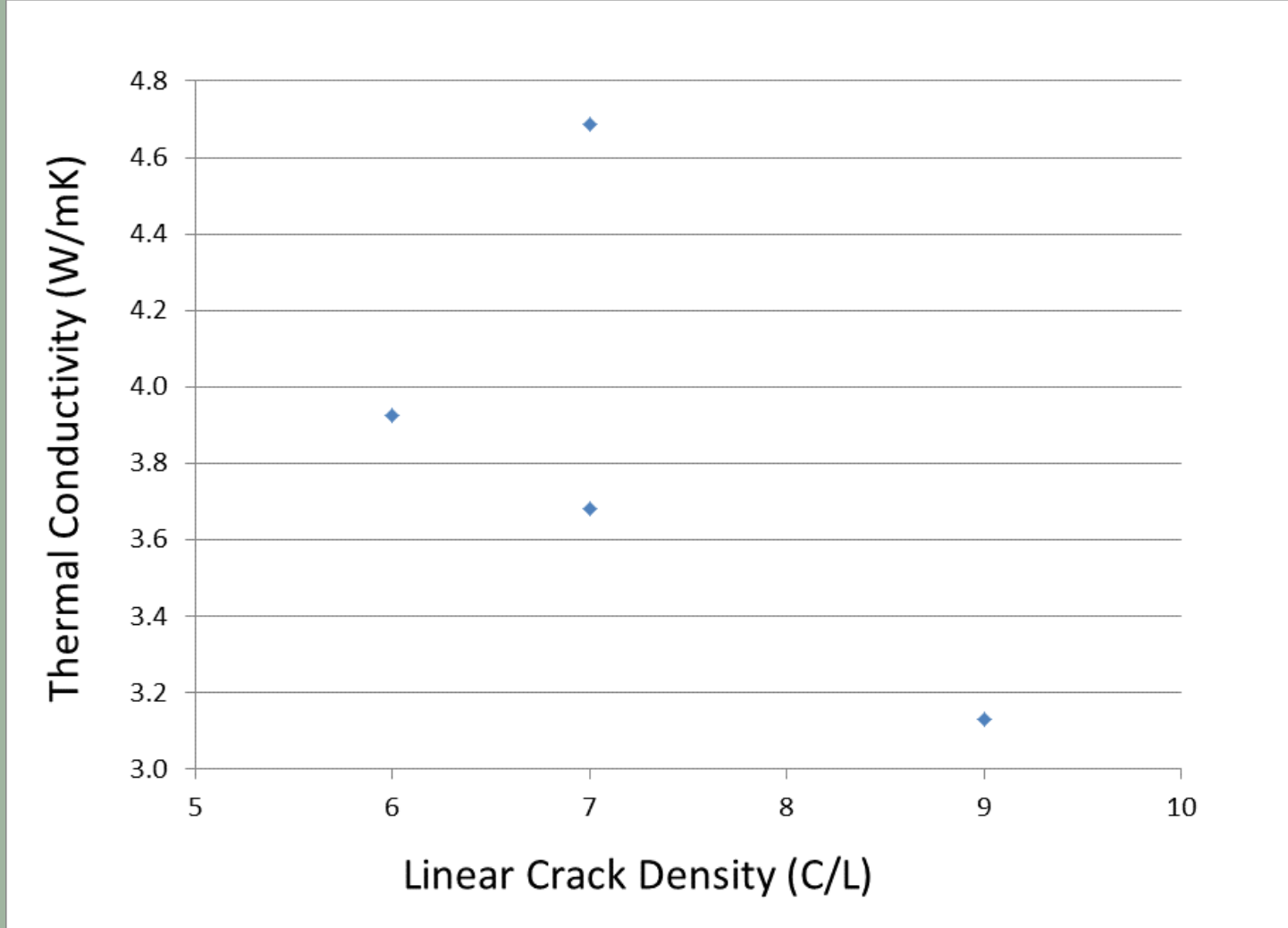
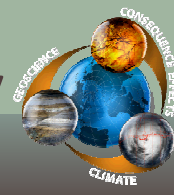
Thermal conductivity: WIPP salt, Sample 2



Comparison of single crystal and fractured salt thermal conductivity.



Linear Crack Density versus Thermal Conductivity



Conclusions

