Peer Review

Summary - Comprehension

The proposal presented by group 8 provides a constructive overview of the case study involving the Rotorua geothermal system. They have provided a solid description of the problem at hand with potential stakeholders, plots that display the data in a sensible manner, and an understandable conceptual model sketch. From our assessment, we believe that this group is heading in the right direction in terms of the goals they want to achieve with the design of the model and that the overall concept is well conceived. However, we also determined that there are a few key parts to this conceptual model that are missing or misinterpreted which could be addressed through the recommendations provided.

Assessment - Critical assessment

The numbers of each Assessment relate to a relevant Recommendation in the following section

1. There is no clear linkage provided between the model proposed and health of the waikite geyser.
2. The proposal lacks a description as to how the numerical results from the model will relate to outcomes discussed.
3. The data description refers to given data as “Production rate from 1950-2014 from two different boreholes” - however the actual data given is the “Total extraction rate data from the Rotorua geothermal system, and a partition corresponding to a Rhyolite formation”. So one of the two pieces of extraction/production rate data is across the whole field (as opposed to 1 specific bore) and 1 piece of extraction/production rate data refers to a particular geographical zone (the “Rhyolite Zone”) [See Ratouis2017 pg 171-172].
4. The conceptual model diagram does not reference temperature changes in your control volume.
5. You reference missing data that you want: “We’re missing data on the water level of the reservoir before the closure program began”, stating you need it “as a reference point of the pressure before overproduction occurred.” That first data set won’t necessarily be able to act as a reference before overproduction, as overproduction had started well before the closure program began. Eg data on the water level for the 20 years before the closure program wouldn’t count as a reference because overproduction was already occurring at that point.
6. The proposal was long - specifications suggested 2-3 pages, this proposal was quite a bit longer. It made it much more difficult to understand what your proposal was actually proposing as there was a lot of information that wasn’t entirely necessary to the understanding of the proposal.

Recommendations - Constructive feedback

1. Consider how the pressure and temperature of your control volume relates to the health of the Waikite geyser as this is the main concern of the inquiry.
2. Consider the outcome of the model in the proposal, by adding more information on what the potential outcomes are and what is desired.
3. Look at the readings thoroughly to understand the geography of the places of interest.
4. Add the temperature change information to the diagram to make it clear how the temperature ODE relates to the Conceptual Model sketch, this will clarify what is missing from your ODE.
5. Be more specific about wanting to find data from long into the past to give a reference of what temperature and pressure values constitute a healthy condition for the waikite geyser (before extraction began).
6. Try cutting down the length of your proposal to make it easier to read and understand, taking out any information that isn’t completely necessary to the understanding of your goals. A good way to start making it easier to read is using bullet points instead of full sentences.