1. What are the session key findings? What are the new Lesson(s) learned / Scientific progress (since AR5 release, if relevant)?

New techniques for studying the records of past volcanism, including new analyses of the chemical signature of volcanic eruptions in ice cores and new proxy records of past climate change, reinforce the importance of volcanic eruptions as the prime natural cause of climate change for the past 2000 years and for the foreseeable future. In the past volcanic eruptions, have complexly disrupted society and civilization, and we can learn about the impacts of future climate change from studying these past examples. Impacts of volcanic eruptions can last for decades, and can disrupt regional climate through impacts on El Niño and summer monsoon precipitation. When addressing adaptation to climate change, society needs to consider the impacts of natural climate variations as well as anthropogenic ones.

2. What are the major knowledge Gaps and Research Needs identified in the session?

All the topics in 1 above need further research. Furthermore, we need to be better prepared for the next large volcanic eruption, in terms of taking key observations of how particles form in the stratosphere, how ozone reacts, and how the climate system reacts. There are key gaps in the surface-based, in situ (balloons, airplanes and blimps), and satellite observing systems that need to be addressed. Since creating an aerosol cloud in the stratosphere and brightening low clouds over the ocean have been proposed as climate engineering techniques, we can learn a lot more about these by studying the impacts of future volcanic eruptions on both the stratosphere and on low clouds.
3. Did the session discuss/identify promising approaches in the fields of Adaptation and Mitigation, or both?
   No. It discussed volcanic eruptions and climate.

4. Are there take-home messages from the session?
   See 1 and 2 above.

5. Are there Important Quotes from the session?

6. Please include any other remark that you might have.