Earth: an Operators Manual (PBS)

To view: <http://earththeoperatorsmanual.com/feature-video/earth-the-operators-manual>

Some reading questions follow. Please use this sheet to write answers to them and also to take notes on the documentary and related instructor comments. An open notes quiz possible Feb 28 over this.

Why do you think that the narrator Richard Alley tells viewers about his political affiliation, what he likes to do on Saturdays and Sundays, and what type of company he has done some contract work for?

Why did the US Air Force conduct research on the role of carbon dioxide in absorbing radiation? (1950s) What was found?

Identify the two types of data the ices cores give science, and the overall relationship between the two.

Apart from respiration, done by plants and animals, what geologic activity releases carbon dioxide? How does the annual amount of carbon dioxide released geologically compare with that of fossil fuel combustion?

What are the three isotopes of carbon, what is the primary source for each?

What does the atmosphere “tell us” about which of the three sources of carbon is responsible for the large overall carbon dioxide increases of the past decades?

Identify the basic themes of the section about the Pentagon and the military.

Compare China’s renewable energy research expenditures vs. those of the US.

Total annual incoming solar radiation is how much larger than total energy use of humans on Earth?

What crop does Brazil grow and then use to make liquid fuel? What type of fuel is it?

What country produces even more ethanol than Brazil? What is it made from?

Just for your information: Geothermal energy can potentially provide a large share of US electricity use, and is especially valuable in that it can provide “peaking power”. Daytime and early evening are typically times of peak electric power demand. In hotter climates, air conditioning drives late afternoon or early evening peaks.

What can be learned from Texas about wind energy?