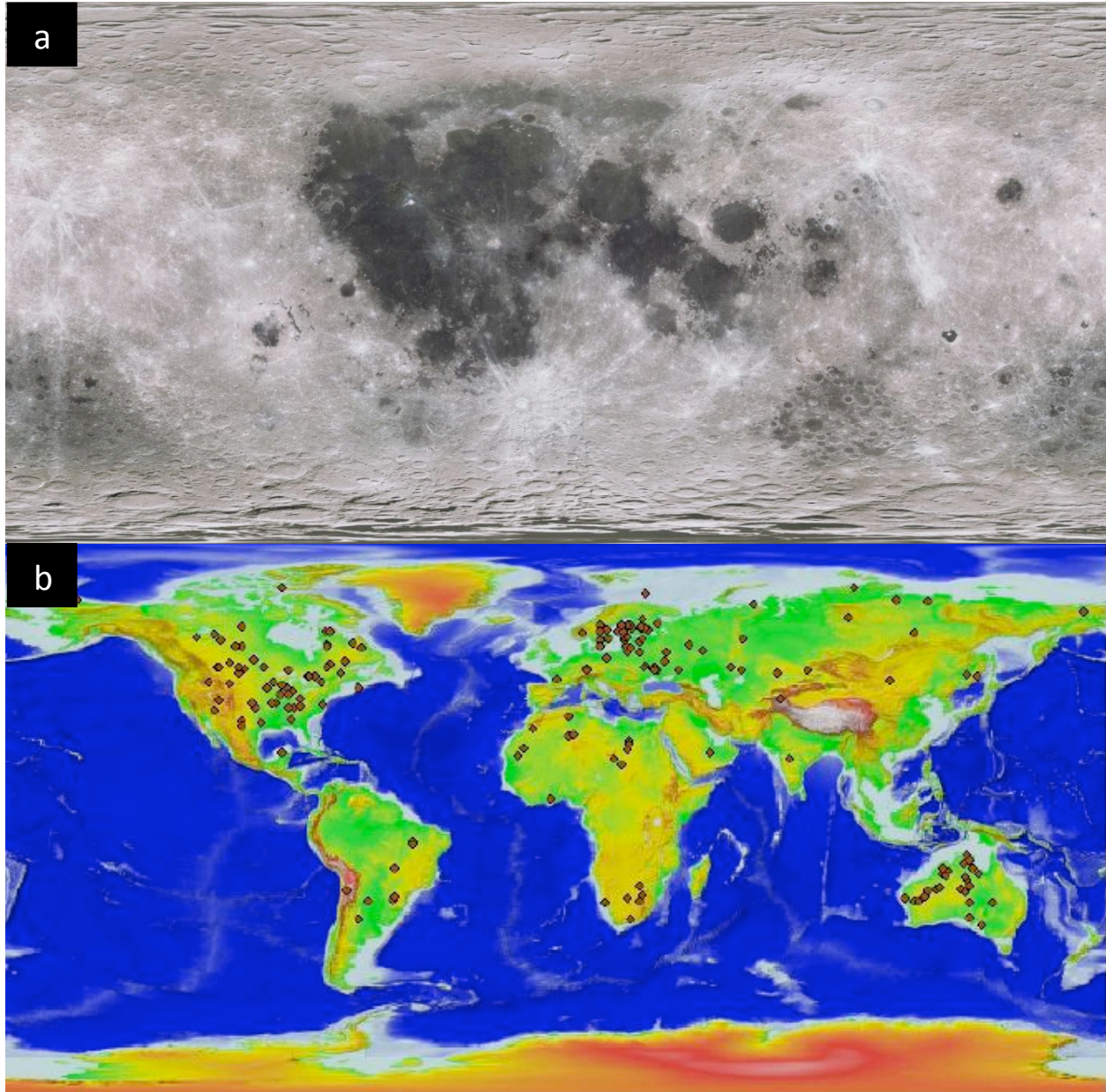


Cosmic Collision
Exercise: Craters on the Earth and Moon
by K. Milam, Ohio University

Name _____
Assignment Date _____
Due Date _____



Instructions: Examine the two cylindrical maps of the Moon (a) and Earth (b) above. In the map of the Moon, virtually every visible landform is an impact crater. The dark spots or lunar maria are even circular in shape, that's because the maria formed in giant impact craters. Thousands of impact craters are visible in this image, some of which are over 1000 km in diameter. In the lower image (b), each red dot represents the location of a confirmed impact on Earth. There number of confirmed impact craters on Earth is currently 176, the largest of which is approximately 200 km in diameter. Spend some more time locating craters on the Moon and Earth and observing their distribution.

Questions:

1. The Earth and the Moon have been orbiting the Sun in the same vicinity of the solar system for billions of years, meaning that they have both likely been exposed to the same amount of asteroids and comets traveling through the inner solar system. Therefore, they should have the same number of impact craters per unit area of surface. Because the Earth has more surface area, it should have even more than the Moon, but it doesn't. Why are there so few impact craters on Earth as compared to the Moon? List at least three possible reasons why.

2. There is an obvious difference in how impact craters are distributed on the Moon versus that of the Earth. Explain the difference in distributions between the two worlds and explain why the Earth is different.

3. There are locations on Earth where there are more impact craters than others. Some areas are devoid of impact craters altogether. What might explain why all 176 confirmed impact craters are located where they are on Earth?