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Soil Moisture and Its Importance to Society

Soil moisture is a small, but vital, factor that impacts our daily lives constantly. While only making up 0.005% of Earth's hydrosphere, soil moisture can help scientists further comprehend data for geoscience visualizations. Soil moisture gives geoscientists detailed insight that directly associates the biosphere, hydrosphere, and atmosphere, as well as the data to prepare for future events (NASA.gov).

NASA's 'Aquarius' satellite has been collecting soil moisture data since June 2011. It has since mapped hundreds of square miles using microwave frequency and has found the soil moisture of the first five centimeters in soil across the globe (NASA.gov). NASA then inputs the statistics into a map of the world and then use a legend to color-code the map to illustrate where soil moisture is in abundance and where it is in shortage. With this visualization, meteorologists can provide more accurate temperature predictions as well as improved humidity forecasts. Soil moisture can communicate this to meteorologists because they have established that places with higher soil moisture will likely be cooler than places with lower soil moisture. This is a result of evaporation of the moisture in the soil leaving the surrounding air cooler, but more humid, than it would in a place with less evaporation (cpc.ncep.noaa.gov).

Soil moisture directly associates with the biosphere by providing vegetation the means to photosynthesize during droughts. Virginia specializes in a great variety of agriculture: soybeans, corn, and tobacco are just a few. Our crop yields owe many thanks to the soil moisture content of Virginia (Agriculturenetwork.org). Without soil moisture the population's grown food supply would slowly cease to exist, and without vegetation continuously producing there would be a diminishing effect on the amount of oxygen in the atmosphere. Eventually, and inevitably, the lack of visualizations depicting soil moisture medians would have a devastating effect on all of Earth's systems.

Websites
"Climate Prediction Center - Monitoring & Data: Soil Moisture Monitoring - Soil Moisture." *Climate Prediction Center - Monitoring & Data: Soil Moisture Monitoring - Soil Moisture*. N.p., n.d. Web. 23 Sept. 2015. <http://www.cpc.ncep.noaa.gov/soilmst/w.shtml>.
NASA. NASA, n.d. Web. 23 Sept. 2015.< http://www.nasa.gov/content/goddard/nasas-aquarius-returns-global-maps-of-soil-moisture/#.VgH0FPlVikr>.
"NRCS National Water and Climate Center | Mapper 2.0." *NRCS National Water and Climate Center | Mapper 2.0*. N.p., n.d. Web. 23 Sept. 2015.
"1.3.1 Importance of Soil Moisture." - *AgriCultures Network*. N.p., n.d. Web. 23 Sept. 2015.
"Abiotic Stress Adaptation in Plants." *Google Books*. N.p., n.d. Web. 23 Sept. 2015.
"A Look At Virginia Agriculture." *Www.agintheclass.org* (n.d.): n. pag. Web. 23 Sept. 2015. <www.agclassroom.org/va>.
Decagon Devices. "ECH 2O Check Operations Guide." *ECH 2 O Check Operations Guide* (n.d.): n. pag. Decagon Devices. Web. 23 Sept. 2015.< http://manuals.decagon.com/Manuals/Discontinued/ECH2O-Check-Operations-Guide-(discontinued).pdf>.
Books
Shaxson, T. F., and Richard G. Barber. *Optimizing Soil Moisture for Plant Production: The Significance of Soil Porosity*. Rome: Food and Agriculture Organization of the United Nations, 2003. Print.