

AWM106 – Agricultural Sediment Fundamentals (25 points)

Name	Date	Grade
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Lab Exercise #3– Mapping Tools for Agricultural Watersheds

Lab Objective (3-5 bullets):

1. Find the outline of your “home” watershed, using on-line map sources.
2. Use Google Earth to identify the waterbodies and other geological features in your “home” watershed
3. Draw a “flow” diagram of natural water movement through that watershed
4. Identify the potential soil erosion sources providing sediments to each water body
5. Take a drive through the watershed and note what clues you can find about how management can be improved to reduce sediments coming from the watershed. Collect digital photos to use in reviewing your findings.

Lab Introduction Narrative (3-5 sentences):

Watershed management---assessment, recommendations, implementation, result evaluation---makes use of a variety of information sources, many of which are found in map form. So people working with watershed management at any level should be aware of these resources, how to use maps, and the tools available to help interpret and apply the information.

Web Soil Survey (WSS) provides soil data and information produced by the National Cooperative Soil Survey. It is operated by the USDA Natural Resources Conservation Service (NRCS) and provides access to the largest natural resource information system in the world. NRCS has soil maps and data available online for more than 95 percent of the nation’s counties and anticipates having 100 percent in the near future. The site is updated and maintained online as the single authoritative source of soil survey information.

Text References:

1. <http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/survey>
2. <http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>
3. <https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=12&cad=rja&uact=8&ved=0ahUKEwi-wv7l1MrLAhUF6CYKHU4zAhYQtwIIVDAL&url=https%3A%2F%2Fwww.youtube.com%2Fwatch%3Fv%3DLkxOhvdcswU&usg=AFQjCNE5rnj2cXCbEFPTMhg4Gc6kKjdnRQ>
4. <http://icbmp.lrswebsolutions.com/Watersheds/Lake-Springfield/>

Tools and Materials:

- NRCS Digital soil survey
 - <http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/survey>
 - <http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>

- Google Earth

Safety Precautions:

Procedures:

Find the Web Soil Survey on the USDA-NRCS website.

The University of California-Davis has converted the SoilWeb database and maps to work with GoogleMaps. That is available on line at:

<http://casoilresource.lawr.ucdavis.edu/soilweb-apps/>

From this page you can access several other map-based tools:

- SoilWeb—Explore soil surveys using an interactive Google map
- SoilWeb Earth---3-D display of soil maps in KML, using Google Earth.
- SEE: SoilSeries Extent Explorer
- Soil Properties App---Explore soil properties in map form
- Soil Agricultural Groundwater Banking index (SAGBI)---Groundwater recharge (California)
- Text Interface
- Access soil information about soils of interest to you.

Download and install Google Earth and Google Maps (free downloads from:

<https://earth.google.com/>)

Select an area in your local watershed to explore with these tools.

1. View and print a Google map of the watershed.
2. Find the same area on the SoilWeb, and print a screen shot.
3. Identify the major soil types in the watershed from the soil survey
 - a. Choose one of the main soils in that area
 - b. Look up the details about that soil on the SoilWeb database
 - c. Use the SEE program on that website to display a map of the extent of that soil type.
4. Highlight the major water bodies in the images
 - a. Draw arrows on the Google map to indicate the flow of water in that watershed.
 - b. Identify the most likely sources of sediment within the watershed, and determine where the sediments are transported when they leave the watershed.

Maintenance of Workstation and Tools:

Summary Statement:

Lab-covered Questions (15-points):

Lab Participation (10-points):

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Element	Excellent	Proficient	Partially Proficient	Below Proficient	Unsatisfactory	Points
Student Lab Participation	5 points The student is engaging thoroughly, with well thought out questions and answers.	4 points For the student to answer (or ask a question) to engage in the discussion, he/she is engaging, but sometimes is not fully explained or developed.	3 points The student's question/answer was somewhat proficient but could have been expanded upon	2 points- 1 pt. The student's answers was minimal and did not address much of the issues or topics in order to be engaging.	0 points Engagement was neither attempted nor completed	___/5
Student Lab Performance	5 points The student's actions, feedback and comments were thought-provoking and had substance	4 points The student's actions, feedback, and comments were good but could be expanded upon	3 points The student's actions, feedback, and comments made were minimal and did not provide much depth	2 points- 1 pt. The student's actions, feedback, and comments were one sentence that did not expand upon the lab topic	0 points No responses or feedback were given by student	___/5
Total points						___/ 10