**Potential Research Paper Topics**

Sedimentology & Stratigraphy Course

Spring 2020

This list is designed to give you ideas for your research paper in this course. You may directly choose one of the topics below, modify a topic to your taste, or develop your own topic from scratch using these as inspirations and examples of scope and coverage. Note that these are *topics* not paper *titles*. See the other side of this page for the form.

Paleoenvironments of the Cuyahoga Formation (Lower Carboniferous)

-- Note that you can study the paleoenvironmental framework of *any* sedimentary unit.

Using volcanic ash layers for stratigraphic correlation

Clay mineralogy of ancient soils

The sedimentary structures in volcanic mudflows (lahars)

Lacustrine carbonates and their importance for paleoenvironmental analysis

The geochemical controls of Calcite Sea carbonate precipitation

Alluvial fans in deserts: sedimentological processes and patterns

Desert varnish: its formation and utility for paleoclimate analysis

Origin and development of sedimentary phosphates

Why do streams meander? Has meandering been influenced by land plant evolution?

Determining hydrodynamics of currents from flaser and lenticular bedding

Clay mineralogy as a key to sediment provenance and depositional environments

Stratigraphic correlation in archaeological sites, as shown by an example

Hydrodynamic controls of delta development

Tufa and its use in discovering ancient hydrological regimes

The utility of isotopes and trace elements to discern sedimentary provenance

Seismites and other sedimentary structures used to analyze ancient earthquakes

Sedimentological patterns in braided river deposits

The relationship between vegetation and sand dune morphology

Gypsum and anhydrite deposits of the Messinian Salinity Crisis

How do carbonate hardgrounds form?

Sedimentological applications of ground-penetrating radar

The formation and diagenesis of chert in ophiolite complexes

Eolian sedimentation on Mars

Evidence for ancient fluvial systems on Mars

The sedimentary geology of Pluto

Geochemistry and mineralogy of Martian sediments

Sedimentary processes on desert playas

How are ergs formed? Why are they more common at some times than others?

Sequence stratigraphy in carbonate deposits

Turbidity currents and the deposition of turbidites

Microbial mats and their effects on siliciclastic sediment movement

Sedimentology of submarine fan systems

Sedimentary evidence for the Snowball Earth Hypothesis

Sedimentary features in the absence of water: Examples from the Atacama Desert

Trace fossils as indicators of marine or terrestrial paleoenvironments

Please turn in this form (as paper) in your lab on Thursday, January 23.

Title (not just topic) of your research paper:

One key journal article (not website, not book) you will use for this research, using the required format:

(For the proper format, please see our Research Paper page on the course website.)

Example citation –

Wiles, G.C., and Calkin, P.E., 1994, Late Holocene, high-resolution glacial chronologies and climate, Kenai Mountains, Alaska: Geological Society of America Bulletin, v. 106, p. 281-303.