

From mudstones to sandstones - Sequence Stratigraphy and Sedimentology of fluvial and deltaic reservoir analogues, Cretaceous Ferron Notom Delta, Capitol Reef, Utah

McMaster University Quantitative Sedimentology Research Consortium Field Trip, Sunday August 9th – Friday August 14th.

Dr. Janok P. Bhattacharya
Susan Cunningham Research Chair in Geology
School of Geography and earth Sciences
McMaster University, 1280 Main St. W
e-mail: bhattaj@mcmaster.ca
Wk: (905)525-9140 Ext. 23528
Cell: (905)379-2921

Purpose of Trip

This trip will provide an overview of fluvial and deltaic systems in the Ferron Notom Delta in Central Utah. The trip will show examples of fluvial, storm and wave-influenced deltaic and shoreline systems and the associated feeding fluvial deposits. We will show examples of incised valleys and discuss how they differ from distributary channels and from transgressive and highstand fluvial systems. The trip will also examine the interaction of sedimentary processes and the generation of growth faults. This trip will showcase recent results from our ongoing research program on the Ferron “Notom” Delta near Capitol Reef, Utah.



Getting There

You should plan to arrive in Grand Junction, CO or Salt Lake City by Sunday evening. Each participant is responsible for transportation to The Capitol Reef Resort. I recommend that you vehicle pool. 4WD vehicles are required! The fastest way to get to Salina is to take Highway 15 south to Salina and from Salina through I70 to Highway 24. It will take about 4 hours (see map at the back of this document). Grand Junction is about 3.5 hours to Torrey. Take I70 to Highway 24, head south on 24 and then west on 24 to Torrey. The field trip will officially leave at 8am Monday Morning from the Capitol Reef parking lot. The field trip will officially end at about noon, Friday August 14th near Hanksville. We will have an optional early afternoon stop to visit some spectacular growth faults just south of previous stop. It is about a 4 hour return drive to Salt Lake City from Hanksville (see map at end) and 2 1/2 hours to Grand Junction.

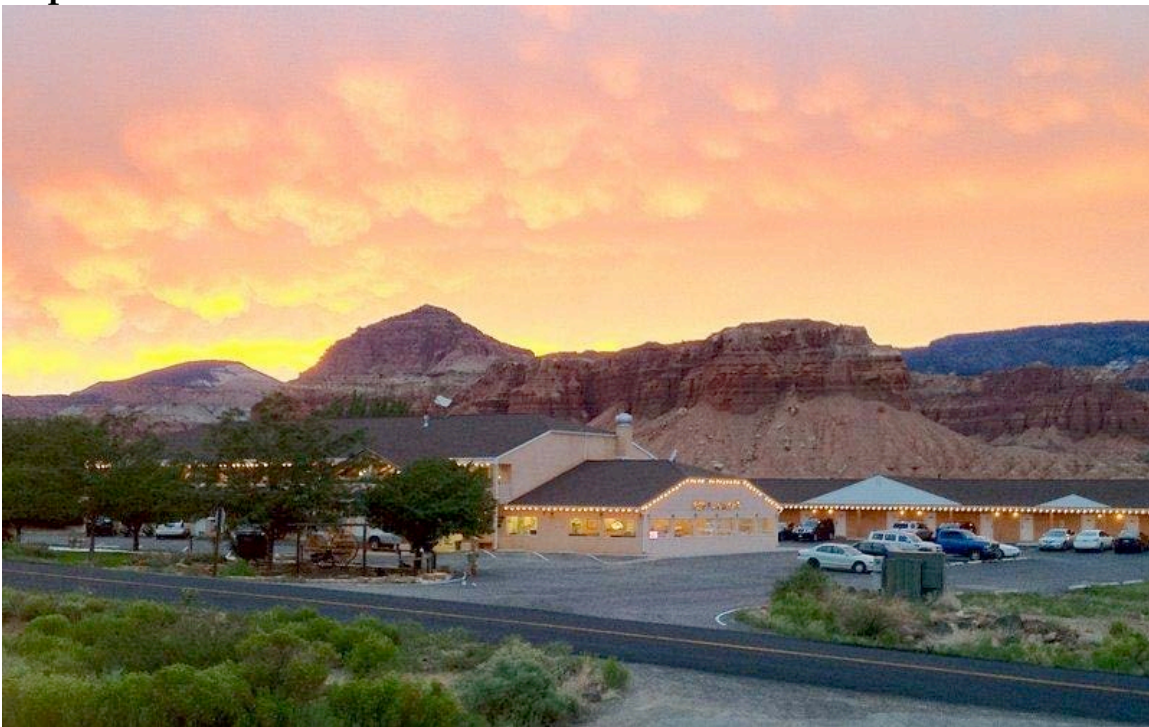
Hotels

Book Your Rooms Before July 9th, 2015!

I have reserved a block of 20 rooms at the Capitol Reef Resort . To book your rooms call the number below and advise them that you are with the McMaster. The group is set up for 5 nights. Each person pays with their own credit card. The rooms are being held until July 9th, 2015, so please book by July 9th.

Hotel:

Capitol Reef Resort



2600 E Highway 24, Torrey, UT 84775

Phone: (435)425-3761

Fax: (435)425-3300

web: <http://capitolreefresort.com>

e-mail: capitolreefresort@wyom.ne

RECOMMENDED FIELD EQUIPMENT

Here is a list of suggested equipment and supplies that will be needed for the field trip. Note that we will be working in a desert. Expect temperatures to be 85-100°F during the day and 50 - 80°F at night. Clothing worn during the day should be light-colored, loose fitting, and cover as much of your body as is comfortable to reduce exposure

Clothing

- Hiking boots (essential)
- Pants – the desert environment is replete with a variety of thorny plants and rattlesnakes (rare).
- Hat – Wide-brimmed to shade neck and face.
- Light weight rain jacket
- Swim trunks or swimsuit. Hotel has a pool and hot-tub.

Gear

- Backpack or waistpack for carrying raingear, water bottle, field guide, lunches
- Sunglasses/Sunscreen/Lip balm
- Insect repellent (gnats can be bothersome)
- Canteen or hydration pack
- Rock Hammer (useful to cut footholds on steep shale slopes)



SAFETY AND FIRST AID

You may wish to carry a small first aid kit, although we will have them available, and BP HSC personnel usually have additional safety gear. The main safety considerations are:

- Road safety: most roads are single lane with no passing lanes, through Capitol Reef National Park. Cyclists, RV's, and motorcycles are common. There are deer throughout the park, and especially around the abandoned town of Fruita.
- Road field stops: Although these are limited, take care crossing roads, keep off the roadway.
- Dehydration, Heat Exhaustion and Heat Stroke: This is a desert. It may be cool in the mornings but may exceed 100°F in the afternoon, carry plenty of water and keep hydrated!
- Sunburn and chapped lips are common, wear a hat, and use lipbalm, and sunscreen.
- Loose rocks, steep cliffs, overhangs, watch out for people below you. Avoid climbing. If you do climb, spread out laterally, so that there are no folks below you. On shale slopes or loose surfaces, use your rock hammer to cut steps.
- Land surface: Good hiking boots are essential, no sneakers, flip-flops, or sandals please! Cacti will puncture these.

- Snakebite (very unlikely, but there are Black Widows and Rattlesnakes in the field area).
- There are no hospitals in Hanksville or Torrey. The nearest full hospital is in Price, Utah or Richfield, Utah, both a bit over 1.5 hours drive from the field area (see map at end of document). There is a medical clinic in Green River, Utah, about 1 hour from Hanksville.



Itinerary is provided below. Itinerary is subject to last minute changes based on local weather and road conditions.

Itinerary

Day 1. Sunday, August 9th: Arrive Grand Junction, CO or Salt Lake City, Drive to Torrey Utah

Check into Hotel. Supper on your own. Recommended Restaurant: Rim-Rock Restaurant, Cafe Diablo, the Saddlery are highly recommended. Castlerock Coffee and Candy serve cappucino's and good breakfast sandwich.

Day 2. Monday, August 10th: Ferron Sandstone, Notom Delta

Stop 1. Introduction to Ferron Facies and Sequence Stratigraphy.

- Examine fluvio-deltaic transition.
- Examine non-marine facies



Prodelta to delta front transition, Caineville South.

Stop 2. Middle Caineville

- Deformed storm-dominated delta fronts.
- Rooted floodplain mudstones and paleosols.
- Incised valleys

Stop 3. Caineville North

- Prodelta shales and bentonites
- Storm-flood-dominated delta front
- Distributary-channels
- Shorefaces
- Transgressive lag facies
- Ferron-Blue Gate contact



Multi-storey valley fill overlying rooted floodplain, Middle Caineville.

Day 3. Tuesday, August 11th

Stop 1. Steamboat

- Bentonite datum and prodelta shelf mudstones
- Deltas and Shorefaces with transgressive lags

Stop 2. Compound Incised valleys and Fluvial Facies, Neilson Wash, Factory Butte Road

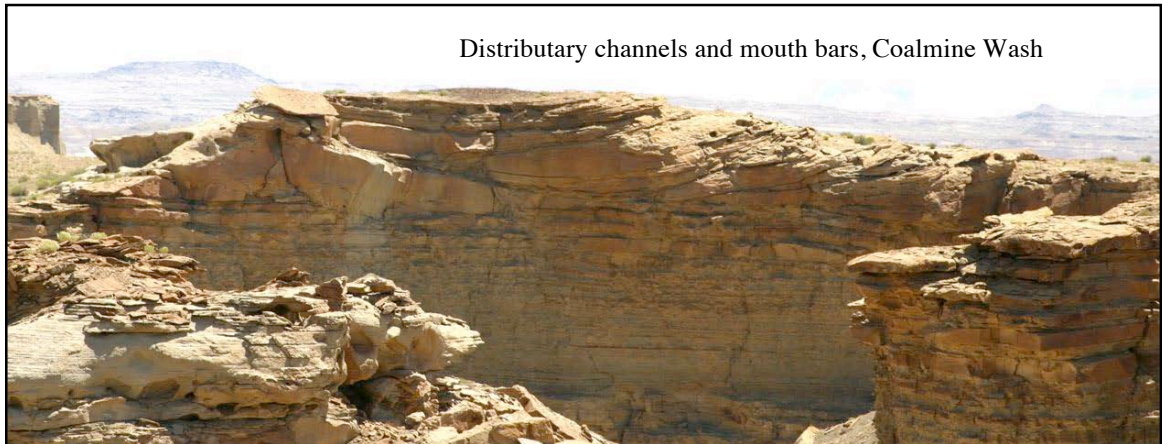
- Incised valley fills



Day 4. Wednesday, August 12th

Stop 1. Coalmine Wash

- Prodelta and delta-front heterolithics
- Terminal distributary channels and mouth bars in fluvial dominated deltas (PS 6 and PS 5).
- Skyline Rim



Day 5. Thursday August 13th*Stop 1. Radio Tower Turnoff*

- Low ntg highstand and transgressive fluvial systems
- Tide-influenced valley fills
- Compound valley fills

*Stop 2. Caineville Road*

- Sequence 2 compound valleys
- interfingering shoreface

Day 6. Friday, August 14th: Nielsen Wash North*Stop 1. River deposits in plan view**Stop 2. (Optional) Growth Faults in plan view*