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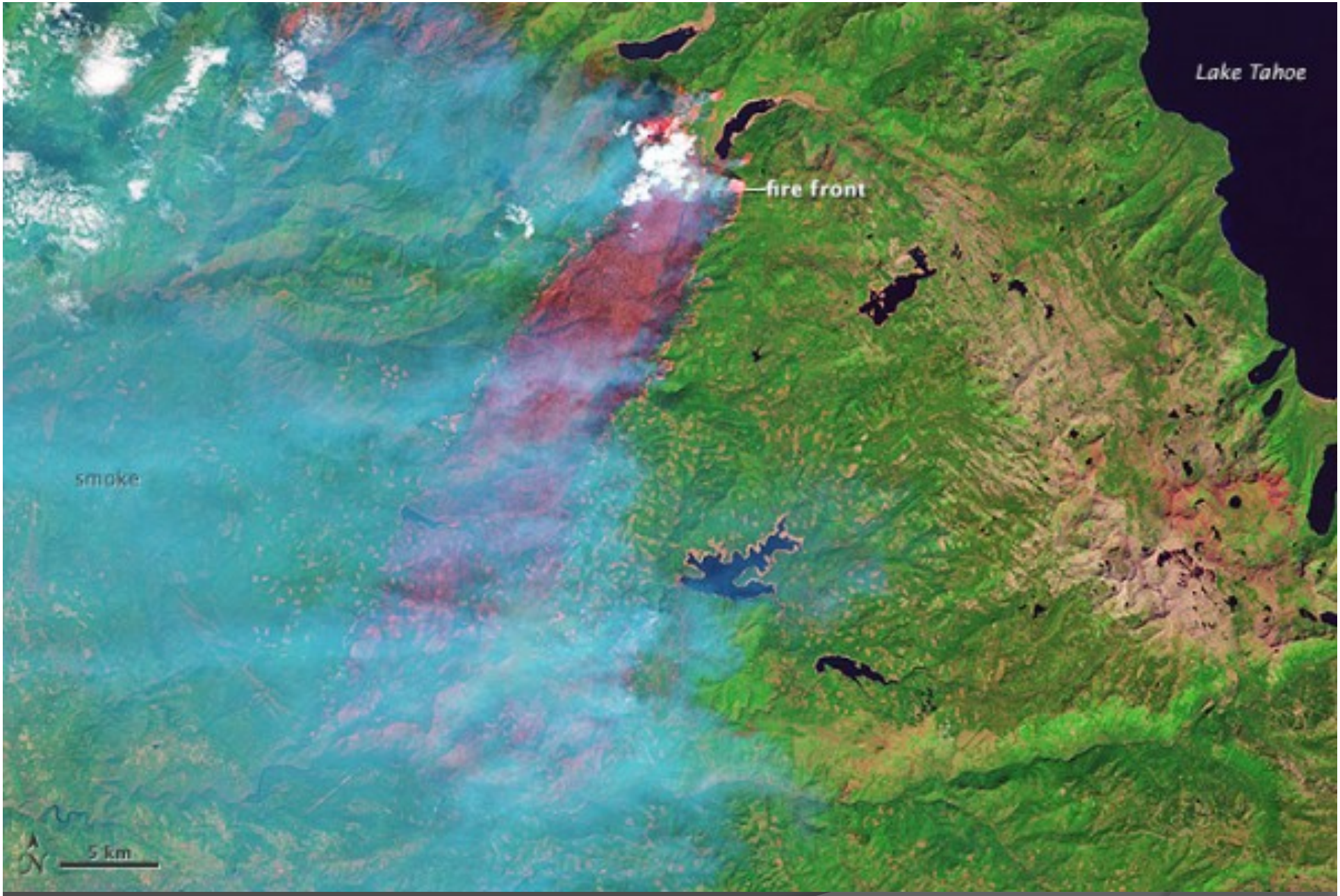
ASH FALLOUT IN VAN NORDEN MEADOW

The King Fire: 100,000 acres burned



Wind direction (from South, blowing North) accelerated the spread of the fire. The wind puts Van Norden Meadow right in the path of the ash cloud.

Van Norden Meadow

- Total area of Van Norden Meadow: 1,423,079.73m^2 (351.65 acres)
- Meadow restoration began in 1976 when the water level of the lake was lowered significantly.
- Vegetation Majority: Conifer

General Information about the experiment

- Transect 1 was east of Transect 2*
- Both sites were comparable distances away from a source of water.

*Transect 1 and Transect 2 will be referred to as Site 1 and Site 2 in data

Research Questions

- How much total ash (in grams) did we collect?
- How much ash per transect did we collect?
- Was there a directional trend?
- How does grass height affect the amount of ash per section?

Field Procedure

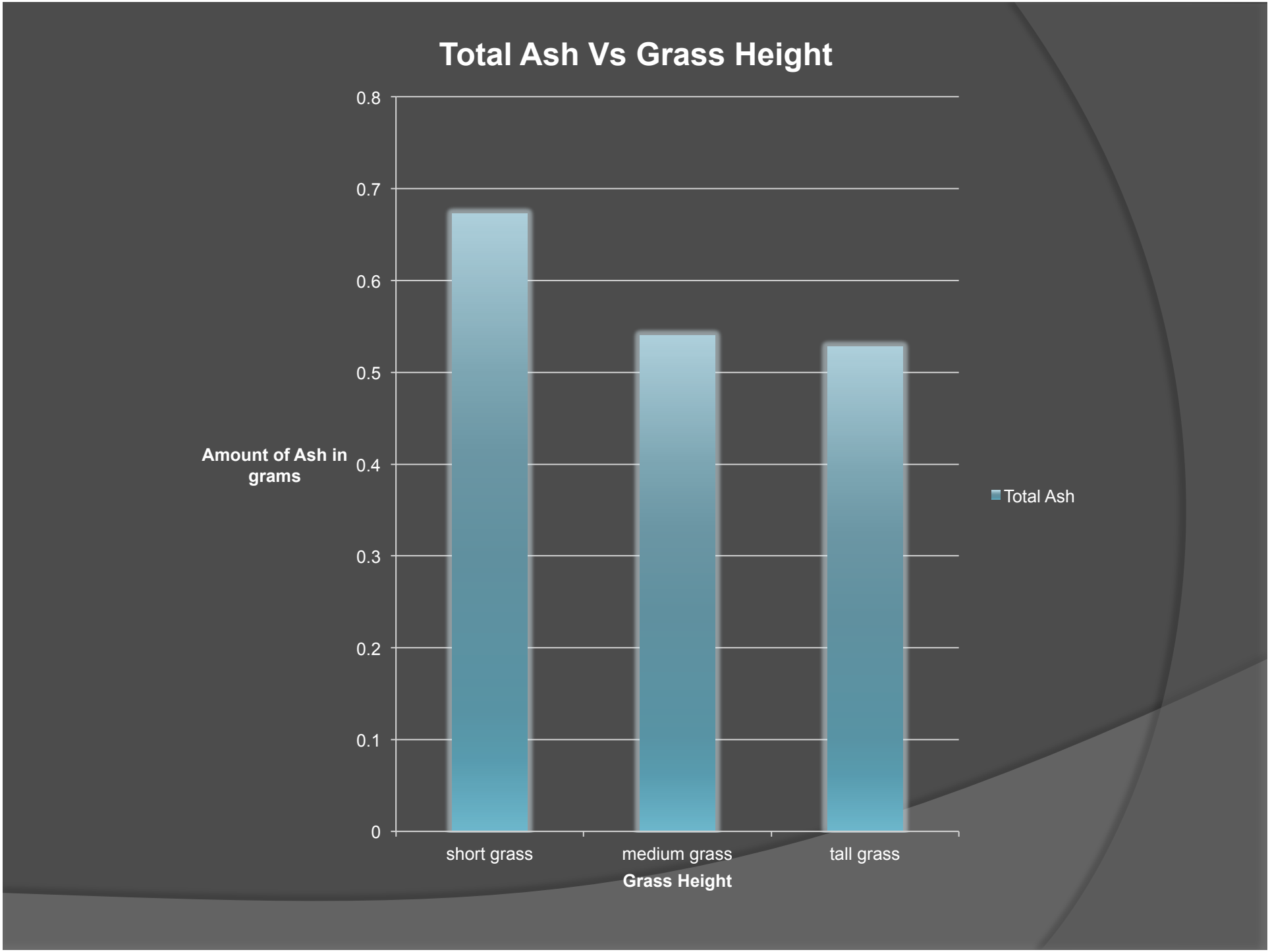
- Choose a transect that represents the area.
- Measure 100m from due south to due north.
- Use random number generator (1-100); ten sites.
- Lay out $1m^2$ for ash collection.
- Collect ash.
- Record % coverage* in each square. (*Vegetation)
- Record height of vegetation. (Estimate)
- Repeat above process at second site.

Lab Procedure

- Dry out ash (carbon).
- Find acreage of meadow and convert to m^2.
- Weigh ash for each transect (total).
- Weigh ash from each section.
- Plot grass height vs. amount of ash.
- Plot % coverage vs. amount of ash.

Hypothesis

- No directional trend due to size of transects.
- Transect 1 will contain more ash due to grass height and percent coverage.
- Human error will play a large role in the outcome of our extrapolation for the entire meadow.


Total Ash Vs Grass Height
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Amount of Ash in grams
short grass
medium grass
tall grass
Grass Height
Total Ash

Amount of Ash per Site
1.2
1
0.8
0.6
0.4
0.2
0
Amount of Ash in Grams
12m
21m
25m
50m
55m
56m
68m
71m
89m
99m
Site Locations
Site 1
Site 2

Conclusion

- Data is missing from several sites.
- Data collection was not extremely accurate as ash was probably left in the taller grass.
- The average amount of ash per m^2 (in grams) is . 509.
- The calculated amount of ash in the meadow was 725,021.673g, however when we calculated the total amount of ash found in the valley using the average amount of ash in square meters with short grass, that number jumped to 957,021.118 g. This is most likely due to the ease of finding ash in shorter grass.
- The second figure is probably more accurate because we can assume an even dispersal of ash over the meadow.