



SCIENCE MATTERS

TYPHOON HATO

TYPHOON HATO: TWELVE KILLED AS STORM SWEEPS SOUTH CHINA

Typhoon Hato made landfall at noon on Wednesday near Zhuhai city in Guangdong province, bringing with it strong winds and lashing rain.

The storm caused widespread flooding, blackouts and destruction.

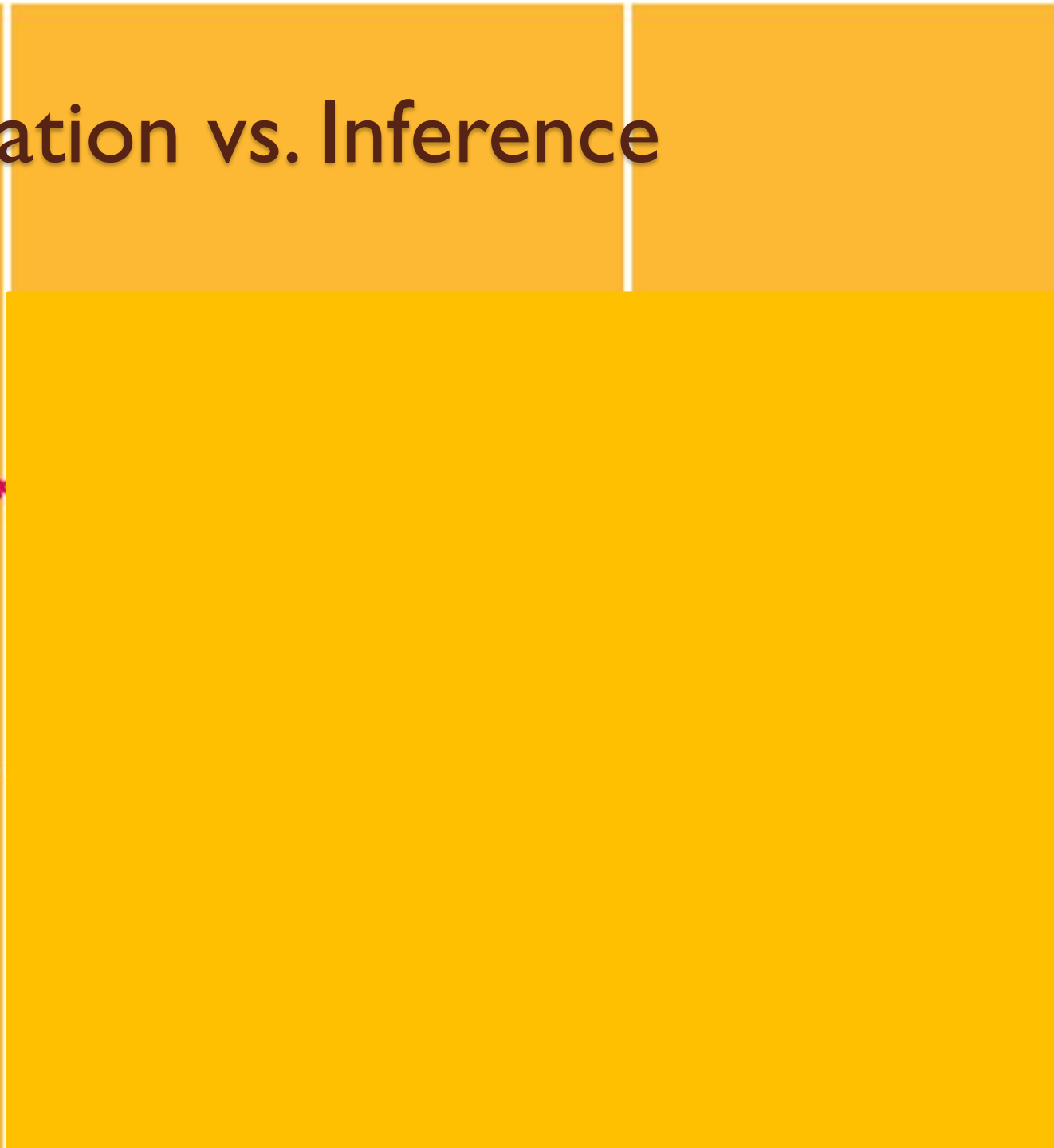
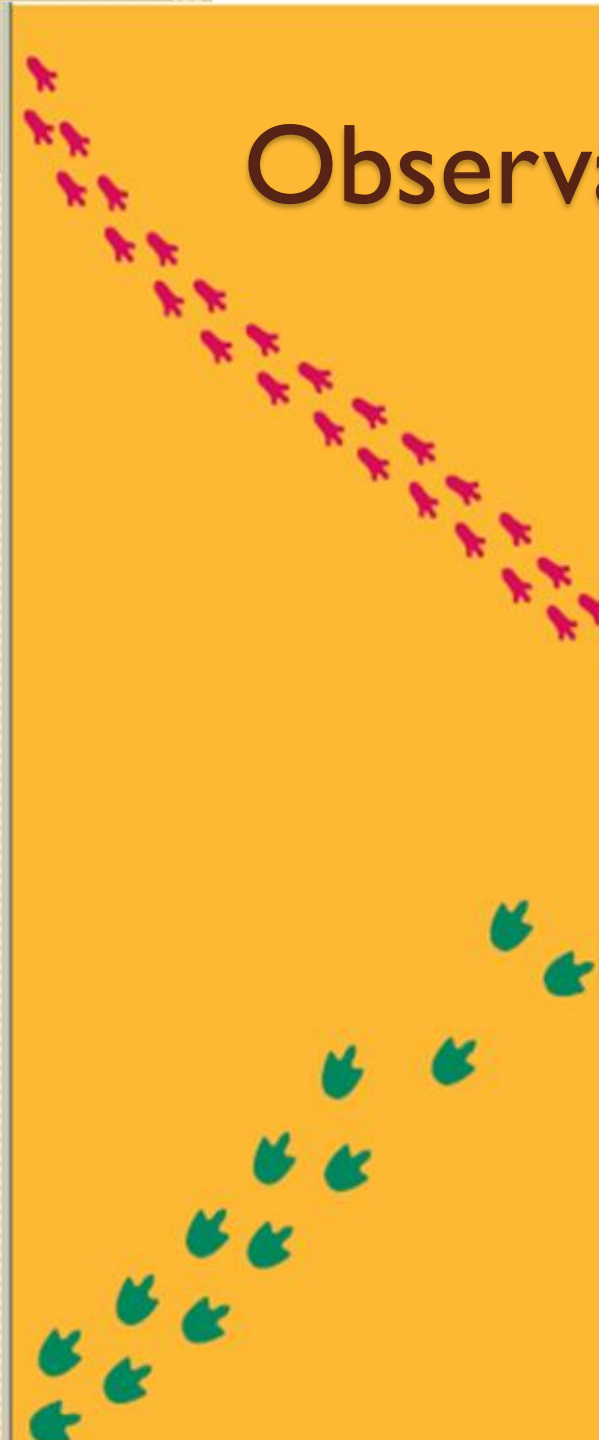


METEOROLOGY INCLUDES ASTRONOMY AND WEATHER AND PHYSICS EVEN.

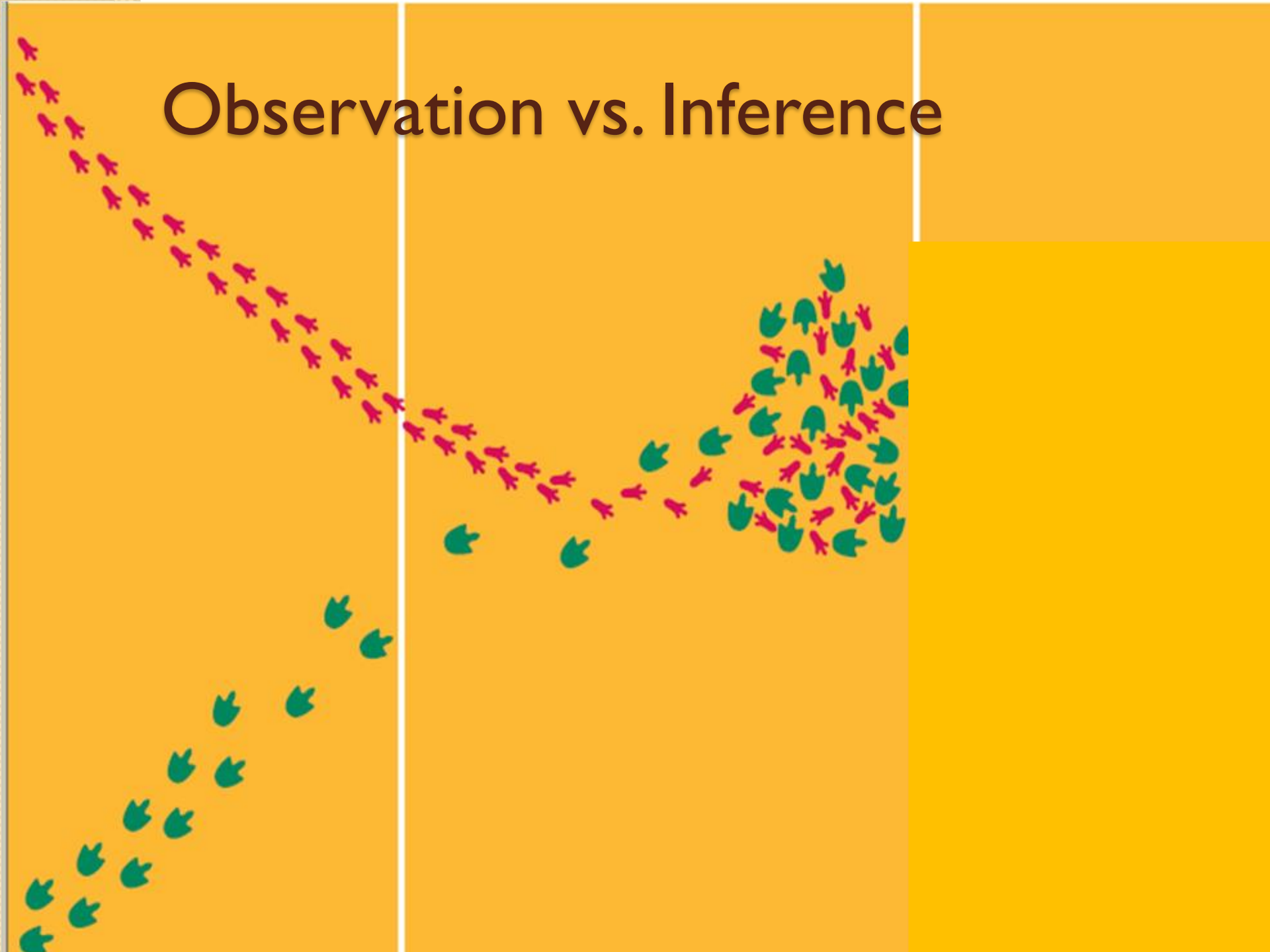
- Predict 3-5 days in advance
- Use of satellite, GPS, Communication towers
- What kind of benefits could this bring?



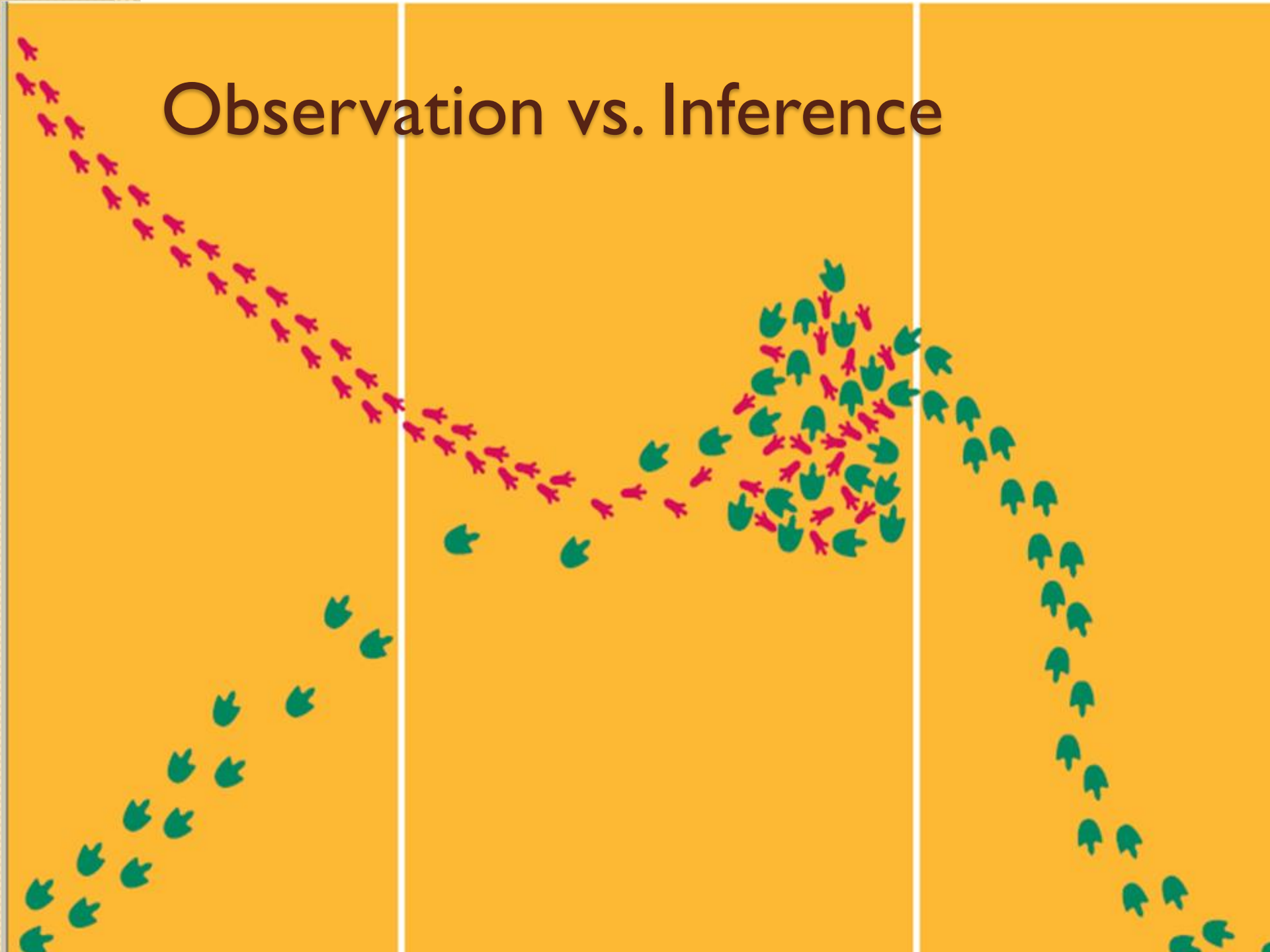
Observation vs. Inference

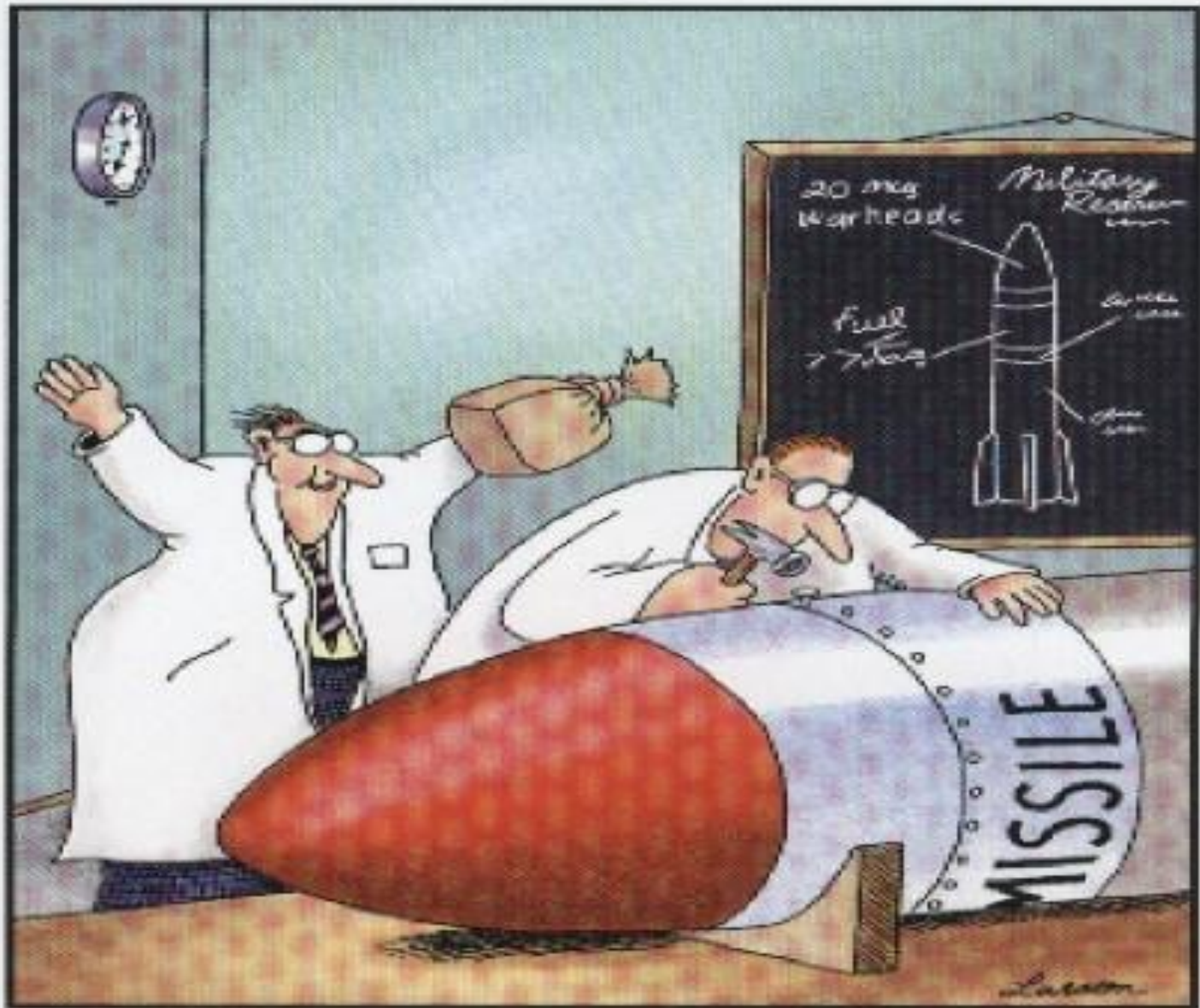


Observation vs. Inference




Observation vs. Inference





Steps to Scientific Method:

- Put them in order:
 - Record Data
 - Analyze Data
 - State Hypothesis
 - Publish findings
 - Make Conclusion
 - Perform Experiment
 - Make observation
 - Ask question

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Important Definitions

- Hypothesis-
- An “educated guess”
Possible solution to the problem or answer to the question.
- It is always testable.
- Tests are based on variables
 - *Variable*: anything that can change in an experiment.

Important Definitions

- Scientific Theory
- A hypothesis that has withstood repeated testing.
- A tested possible explanation of a natural event.
- A theory has withstood all attempts to prove it wrong.
- Is subject to change as new data is gathered.



Observation & Inference

Sample Size is Important!

Do you Have a TV in Your Bedroom?

Class Average: _____ ;

Sample Size of 2000: 71% (University of Michigan, 2010)



Is the TV “Usually” on during Meals?

Class Average _____

Sample Size of 2000: 66%



In Earth Systems – is Sample Size Important?

- Global warming – CO₂ levels.
- Yellowstone
- Lake pollution in Utah.

BIAS

- A prejudiced presentation of material
 - Sampling Bias
 - Size
 - Measurement Techniques (who gets chosen etc.)

Nissan Leaf Commercial

- <https://www.youtube.com/watch?v=Nn9hLJKAk>

RELATIVE SIZES

EARTH VS. SUN



(This is wrong....)



[HTTP://WWW.NUMBERSLEUTH.ORG/UNIVERSE/](http://www.numbersleuth.org/universe/)