An Improved Protocol for Precipitation Measurement  
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**Rationale**

Currently there are two primarily measurements associated with precipitation: accumulation and precipitation element size. Weather data focuses more specifically on accumulation since it more noticeable and more of a hazard in most cases, with the exception of hail. Unfortunately there is a lot of data that can be collected from weather events involving precipitation, but as of right now, climate science relies almost entirely on accumulation values. This study provides an improved protocol for precipitation measurement that results in a value that more accurately describes the weather event.

**Engineering Goals**

Determine and apply an improved protocol for precipitation measurement that more accurately describes the weather event.

**Procedure**

Construction:

1. Cut a ¾” diameter PVC pipe into a 3” length
2. Cut a hole ¼”x1/2” along the edge on one side

Data Collection:

1. Place force plate on top of the pipe vertically
2. Thread wires through hole on the bottom
3. Connect to PC and start up data collection software
4. Spread flour over baking sheet
5. Place baking sheet on force plate
6. Zero the force plate
7. Start data collection
8. Repeat for each weather event

Risk and Safety

There will be minimal risk. The only hazard is the possibility of electrocution due to the combination of wires (electricity) and water. However, this will be prevented through the PVC pipe shielding.

Data Analysis

The formula will be applied to the data to demonstrate its applications and effectiveness.

Discussion of Results and Conclusions  
The formula will be applied to the data to demonstrate its use and effectiveness. Further applications will be discussed in addition to how the formula weighs various data collected.

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