**Project Title:** Precipitation Interface for the Middle East (PrIME)

**Software Description & NASA Software Engineering Classification**

**Technical Point of Contact**

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**Introduction**

Water Resources Action Project, Inc. (WRAP) provides rain barrels and cisterns to underserved schools in the Israel, the West Bank, and Jordan, to help reduce their reliance on the extremely limited municipal water. However, WRAP seeks to use NASA Earth Observations to enhance their understanding regarding which schools are located in areas which receive sufficient rainfall to be harvested. This software addresses the problem by providing an interactive interface which will allow the partner to determine where their efforts would be best directed.

**Applications and Scope**

The software can be used to determine what areas in a region receive the most precipitation, and would thus benefit most from rainwater harvesting.

**Capabilities**

This software will allow the user to view a map of the region, locate an area of interest by zooming/panning the map, and access historical precipitation data by clicking directly on the map. The software will return a window with a graph of the historical precipitation values TRMM and GPM, and possibly GRACE, observed in that area. Multiple clicks on the map will add traces to the graph or add a new tab to the graph window.

**Interfaces**

The software effort is written in JavaScript language and requires Google Earth Engine (GEE) as an interface.

**Assumptions, Limitations, & Errors**

This software is limited to the spatial and temporal resolution of both TRMM and GPM files that were available at the time of the creation of the software.

**Additional Information**

**Software Classification & Justification**

This software is considered to be Class E software per NPR 7150.2.

This software is used to:

* + Perform minor desktop analysis of science or experimental data.

The software is not used to:

* + make decisions for an operational Class A, B, or C system or to-be built Class A, B, or C system
  + support engineering development
  + test other Class D software systems
  + support mission planning or formulation
  + operate a research, development, test, or evaluation laboratory
  + provide decision support for non-mission critical situations
  + in a Major Engineering/Research Facility
  + perform research associated with airborne vehicles or systems

The software will not:

* + operate, directly support, or be flight qualified to support an operational system
  + be used in technical decision concerning an operational system
  + directly affect primary or secondary mission objectives
  + adversely affect the integrity of engineering/scientific artifacts
  + have an impact on operational vehicles

Additionally, if the software had anomalous behavior, that behavior would not cause or contribute to a failure of a system function:

* + resulting in a minor failure condition for the airborne vehicle
  + with an effect on airborne vehicle operational capability or pilot workload

When these criteria are no longer valid, categorization/classification will be reevaluated and the project will start following the procedures for the higher class.

**Not Safety Critical**: The software does not:

* Reside in a safety-critical system with at least one of the following being applicable to the software:
  + Causes or contributes to a hazard
  + Provide control or mitigation for hazards
  + Controls safety-critical functions
  + Processes safety-critical commands or data
  + Detects and reports, or takes corrective action, if the system reaches a specific hazardous state
  + Mitigates damage if a hazard occurs
  + Resides on the same system (processor) as safety-critical software
  + Process data or analyze trends that lead directly to safety decisions (e.g. determining when to turn power off to a wind tunnel to prevent system destruction)
  + Provide full or partial verification or validation of safety-critical systems, including hardware or software systems