

Jupiter Data in JupiterExposureMeasure

1 Overview

The "Jupiter" in `JupiterExposureMeasure` likely refers to Jupiter Intelligence, a company that provides climate risk analytics. While the code doesn't explicitly define Jupiter data, we can infer its nature from the class implementation.

2 Characteristics of Jupiter Data

Based on the `JupiterExposureMeasure` implementation, we can infer the following about Jupiter data:

1. **Hazard Types:** Jupiter data covers multiple hazard types, including:
 - Combined Inundation
 - Chronic Heat
 - Wind
 - Drought
 - Hail
 - Fire
2. **Data Format:** The data appears to be provided as either single parameters or event distributions, as evidenced by the handling of both `HazardParameterDataResponse` and `HazardEventDataResponse` in the `get_exposures` method.
3. **Specific Indicators:** Each hazard type has a specific indicator:
 - Combined Inundation: "flooded_fraction"
 - Chronic Heat: "days/above/35c"
 - Wind: "max_speed"
 - Drought: "months/spei3m/below/-2"
 - Hail: "days/above/5cm"
 - Fire: "fire_probability"

4. **Categorization:** The data allows for categorization into five levels of exposure (LOWEST, LOW, MEDIUM, HIGH, HIGHEST) based on predefined thresholds.
5. **Spatial Data:** The data is likely geospatial, as it's requested for specific latitude and longitude coordinates (inferred from the **Asset** parameter in `get_data_requests`).
6. **Temporal Aspects:** The data is scenario and year-specific, allowing for analysis of future climate conditions under different scenarios.
7. **Wind Data Specificity:** There's a special case for wind data, using a specific model:

```
1 hint=HazardDataHint(path="wind/jupiter/v1/max_1min_{scenario}_{year}")
2
```

This suggests that Jupiter provides detailed wind data, possibly at 1-minute resolution.

3 Potential Nature of Jupiter Data

Given these characteristics, Jupiter data likely consists of:

1. **Climate Model Outputs:** Processed results from climate models, focusing on specific hazards.
2. **Historical Data:** Possibly combined with historical observations for calibration.
3. **Probabilistic Projections:** Especially for event-based data, providing probability distributions of hazard intensities.
4. **High-Resolution Grids:** Geospatial data at a resolution fine enough for asset-level analysis.
5. **Multiple Scenarios:** Data for different climate change scenarios (e.g., RCP 8.5).
6. **Temporal Projections:** Projections for various future time periods.

4 Usage in JupiterExposureMeasure

The `JupiterExposureMeasure` class uses this data to:

1. Request specific hazard information for given assets, scenarios, and years.
2. Interpret the received data values.
3. Categorize the exposure levels based on predefined thresholds.
4. Provide a standardized exposure assessment across different hazard types.

5 Considerations

1. **Data Access:** The actual data retrieval is abstracted through the `HazardModel`, suggesting a modular approach to data sourcing.
2. **Customization:** The predefined categories and thresholds in `JupiterExposureMeasure` are tailored to Jupiter's data ranges and meanings.
3. **Proprietary Nature:** As a commercial product, the exact methodologies and data processing techniques used by Jupiter may not be fully disclosed in the code.