The Space Weather (SWx) instrument pipeline is subject to change; additional instruments may be solicited in the future. This info sheet represents instrument scale and complexity and is not inclusive of all hosted payload options.

**ESA-E** Electrostatic Analyzer - Electron
 PI: Dr. Phyllis Whittlesey, UC Berkeley Space Sciences Laboratory

The ESA-E is a sensor that measures electrons with energies between 2eV and 30keV.

It includes two parts: ESA-E sensor and Electronics Module (EM) power converter and digital controller.

**Location Requirements:**
- Minimal obstruction by spacecraft
- Sun and Parker Spiral in Field of View (FOV)
- Electrostatically clean spacecraft

<table>
<thead>
<tr>
<th></th>
<th>Mass (kg)</th>
<th>Dimensions (mm)</th>
<th>Power (W)</th>
<th>Data (kbps)</th>
<th>Op-Range ('C)</th>
<th>Non-Op Range ('C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ESA-E</td>
<td>2.4</td>
<td>W 150 x L 172 x H 160</td>
<td>2.5</td>
<td>60</td>
<td>-35 to 45</td>
<td>-40 to 50</td>
</tr>
<tr>
<td>EM</td>
<td>1.8</td>
<td>W 196 x L 254 x H 73</td>
<td>4.5</td>
<td>250</td>
<td>-35 to 45</td>
<td>-40 to 50</td>
</tr>
</tbody>
</table>

ESA-E uses a Low-Voltage Differential Signaling (LVDS) interface. FOV: 2π steradians

**SST** Solid State Telescope
 PI: Dr. David Larson, UC Berkeley

The SST is a sensor that measures suprathermal ions with energies between 20keV and 6MeV, as well as electrons with energies between 20keV and 600keV.

It includes two parts: SST sensor and DAP (Data Acquisition and Processing) board.

**Location Requirements:**
- Pointed parallel and anti-parallel to Parker Spiral preferred
- No obstruction by spacecraft
- Corner of spacecraft
- Ion detector cannot operate while Sun is in FOV

<table>
<thead>
<tr>
<th></th>
<th>Mass (g)</th>
<th>Dimensions (mm)</th>
<th>Power (W)</th>
<th>Data (kbps)</th>
<th>Op-Range ('C)</th>
<th>Non-Op Range ('C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SST</td>
<td>685</td>
<td>W 122 x L 119 x H 96</td>
<td>1.6</td>
<td>0.3</td>
<td>-35 to 45</td>
<td>-40 to 50</td>
</tr>
<tr>
<td>DAP</td>
<td>~500</td>
<td>W 196 x L 254 x H 20</td>
<td>--</td>
<td>--</td>
<td>-35 to 45</td>
<td>-40 to 50</td>
</tr>
</tbody>
</table>

DAP uses an LVDS interface.

**ECP-Lite** Energetic Charged Particle-Lite
 PI: Dr. Joseph E. Mazur, Space Sciences Department - Chantilly

The ECP-Lite is a sensor pack that provides in-situ data to track space environment hazards. It measures ionizing radiation dose, plasma currents, voltage transients, surface charging, and single-event-effects.

**Location Requirements:**
- Limited obstruction by spacecraft
- Anti-sunward preferred; surface charging detector cannot operate while Sun is in FOV

<table>
<thead>
<tr>
<th></th>
<th>Mass (kg)</th>
<th>Dimensions (mm)</th>
<th>Power (W)</th>
<th>Data (kbps)</th>
<th>Op-Range ('C)</th>
<th>Non-Op Range ('C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NTE 4.00</td>
<td>4.00</td>
<td>W 155 x L 178 x H 77</td>
<td>NTE 4.0 avg.</td>
<td>0.052</td>
<td>-20 to 50</td>
<td>-30 to 70</td>
</tr>
</tbody>
</table>

ECP-Lite uses an RS-422 interface.

**Update: 6/30/2023**