# Observing Mars from Areostationary Orbit: Benefits and Applications

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Table of physical parameters, observable quantities, and available instruments associated to the scientific applications

<table>
<thead>
<tr>
<th>Application (section #)</th>
<th>Physical parameters</th>
<th>Observable quantities</th>
<th>Instruments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Description</td>
<td>Horizontal resolution</td>
<td>Cadence</td>
</tr>
<tr>
<td>4.1</td>
<td>Extent of (dust/water ice) aerosol clouds</td>
<td>≤ 5 km</td>
<td>≤ 30 minutes</td>
</tr>
<tr>
<td>4.1</td>
<td>Duration of (dust/water ice) aerosol clouds</td>
<td>≤ 5 km</td>
<td>≤ 30 minutes</td>
</tr>
<tr>
<td>4.1 (and 5.1)</td>
<td>Surface temperature</td>
<td>≤ 60 km</td>
<td>≤ 30 minutes</td>
</tr>
<tr>
<td>4.1 (and 5.1)</td>
<td>Vertical profile of temperature</td>
<td>≤ 60 km</td>
<td>≤ 30 minutes</td>
</tr>
<tr>
<td>4.1 (and 5.1)</td>
<td>Dust column opacity</td>
<td>≤ 60 km</td>
<td>≤ 30 minutes</td>
</tr>
<tr>
<td>4.1 (and 5.1)</td>
<td>Water ice column opacity</td>
<td>≤ 60 km</td>
<td>≤ 30 minutes</td>
</tr>
<tr>
<td>4.1 (and 5.1)</td>
<td>Water vapor column abundance</td>
<td>≤ 60 km</td>
<td>≤ 30 minutes</td>
</tr>
<tr>
<td>4.1 (and 5.1)</td>
<td>Carbon dioxide ice column opacity</td>
<td>≤ 60 km</td>
<td>≤ 30 minutes</td>
</tr>
<tr>
<td>4.1 (and 5.1)</td>
<td>Surface pressure</td>
<td>≤ 60 km</td>
<td>≤ 30 minutes</td>
</tr>
<tr>
<td>4.1</td>
<td>Horizontal wind components</td>
<td>≤ 5 km</td>
<td>≤ 30 minutes</td>
</tr>
<tr>
<td>4.2</td>
<td><strong>Solar EUV spectral irradiance</strong></td>
<td>N/A</td>
<td>16 sec</td>
</tr>
<tr>
<td>4.2</td>
<td><strong>Vector magnetic field</strong></td>
<td>N/A</td>
<td>16 sec</td>
</tr>
<tr>
<td>4.2</td>
<td><strong>Solar wind ion flux</strong></td>
<td>N/A</td>
<td>16 sec</td>
</tr>
<tr>
<td>4.2</td>
<td><strong>Superthermal electron flux</strong></td>
<td>N/A</td>
<td>16 sec</td>
</tr>
<tr>
<td>4.2</td>
<td><strong>Energetic ion flux</strong></td>
<td>N/A</td>
<td>20 minutes</td>
</tr>
<tr>
<td>4.2</td>
<td><strong>Energetic electron flux</strong></td>
<td>N/A</td>
<td>20 minutes</td>
</tr>
<tr>
<td>4.3</td>
<td><strong>Kinetic surface temperature</strong></td>
<td>≤ 1 km</td>
<td>3-4 hours</td>
</tr>
<tr>
<td>4.3</td>
<td><strong>Albedo</strong></td>
<td>≤ 1 km</td>
<td>3-4 hours</td>
</tr>
<tr>
<td>4.3</td>
<td><strong>Thermal inertia</strong></td>
<td>≤ 1 km</td>
<td>3-4 hours</td>
</tr>
<tr>
<td>4.3</td>
<td><strong>Mineralogy and thermal inertia (Phobos)</strong></td>
<td>≤ 1 km</td>
<td>≤ 10 minutes when target is in sight</td>
</tr>
</tbody>
</table>