

# SPOT 6 | SPOT 7

## Technical Sheet

### Technical Features

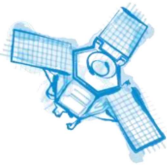
With SPOT 6 and SPOT 7, Astrium secures the mission continuity of the SPOT series, which has collected an archive of more than 30 million scenes since 1986. This new generation of optical satellites features technological improvements and advanced system performance that increases reactivity and acquisition capacity as well as simplifying data access.

### Products

<b>Products</b>	1.5m Resolution <ul style="list-style-type: none"><li>▪ Panchromatic</li><li>▪ Multispectral 3-bands: R, G, NIR or R, G, B</li><li>▪ Multispectral 4-bands: R, G, B, NIR</li></ul>
<b>Location Accuracy</b>	10 m (CE90)
<b>Swath</b>	60 km at Nadir, max strip length = 600 km
<b>Processing Levels</b>	Primary, Ortho, Tailored Ortho

### Space Segment

<b>Number of satellites</b>	2
<b>Launch periods</b>	<ul style="list-style-type: none"><li>▪ SPOT 6: September 9, 2012</li><li>▪ SPOT 7: Q1 2014</li></ul>
<b>Design lifetime</b>	10 years
<b>Size</b>	<ul style="list-style-type: none"><li>• Body: ~ 1.55 x 1.75 x 2.7 m</li><li>• Solar array wingspan 5.4 m<sup>2</sup></li></ul>
<b>Launch mass</b>	712 kg
<b>Altitude</b>	694 km
<b>Onboard Storage</b>	1 TB



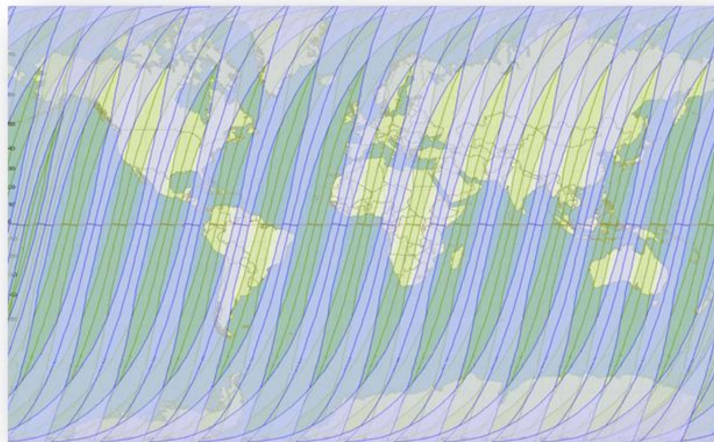
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### Orbital Characteristics and Viewing Capability

The SPOT 6 and SPOT 7 missions are designed to provide large area coverage and detailed information on individual targets. This is possible thanks to the superior agility of the satellite.

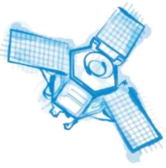
<b>Orbit</b>	Sun-synchronous; 10:00 AM local time at descending node
<b>Period</b>	98.79 minutes
<b>Cycle</b>	26 days
<b>Viewing Angle</b>	Standard: +/- 30° in roll   Extended: +/- 45° in roll
<b>Revisit</b>	<ul style="list-style-type: none"> <li>▪ 1 day with SPOT 6 and SPOT 7 operating simultaneously</li> <li>▪ Between 1 and 3 days with only one satellite in operation<sup>1</sup></li> </ul>
<b>Pointing Agility</b>	Control Moment Gyroscopes allow quick maneuvers in all directions for targeting several areas of interest on the same pass (30° in 14 seconds, including stabilization time)
<b>Acquisition Capacity</b>	Up to 6 million km <sup>2</sup> daily with SPOT 6 and SPOT 7 when operating simultaneously
<b>Nominal Imaging Mode</b>	<ul style="list-style-type: none"> <li>▪ 60-km swath strips oriented along North-South axis</li> <li>▪ Up to 600km length</li> </ul>
<b>Stereo Capability</b>	Single pass stereo and tri-stereo (fore, nadir and aft mode)



*Daily revisit for the SPOT 6 and SPOT 7 constellation:*

*SPOT 6 (blue) and SPOT 7 (green) combined visibility areas for a given day (viewing angle +/-30°only)*

<sup>1</sup> Depends on the latitude of the area of interest

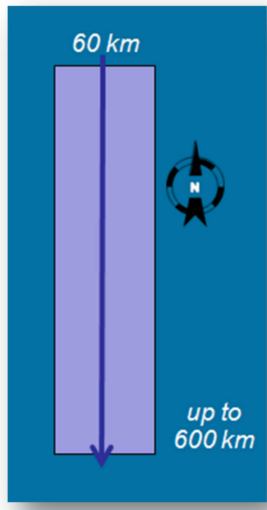


# SPOT 6 | SPOT 7

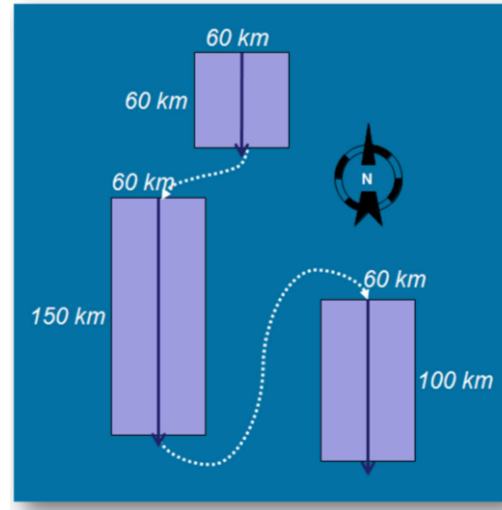
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### Imaging Modes

The high agility of the SPOT 6 and SPOT 7 constellation is used to offer efficient data collection capabilities particularly suited to serve cartographic and monitoring applications.

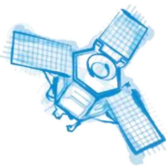


a. Standard data collection: Long strip

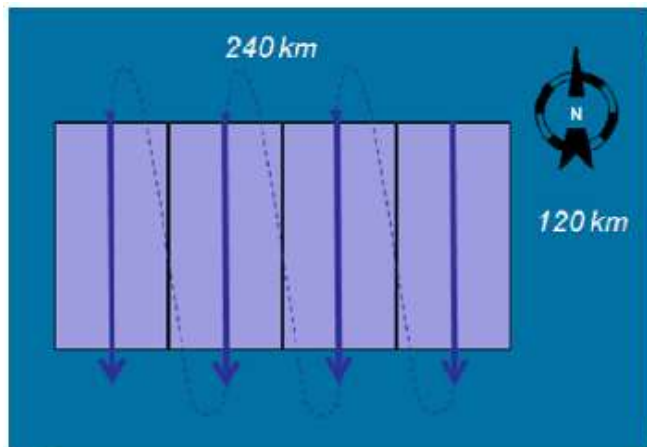


b. Standard data collection: Target

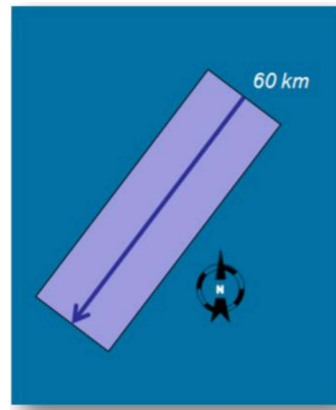
Standard data collection mode enables a (a) North-South long strip of up to 600 km length to be acquired in one pass. In addition, the high satellite agility allows for (b) very quick moves from one scene to another along an orbit. This provides the ability to complete global data coverage over a large area of interest in a short period of time, to better avoid acquisition conflicts and to collect of a significant number of distant targets in a given geographical area in a single pass.



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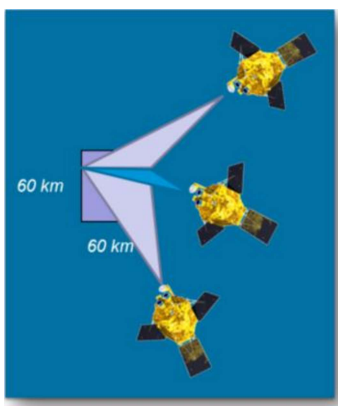


*c. Single pass: Multi-strip collection*



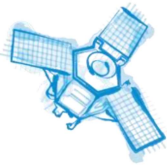
*d. Single pass: Corridor collection*

SPOT 6 and SPOT 7 are able to acquire (c) contiguous image segments collected from a single pass along one orbit. This provides the capability to cover areas of more than 120 km x 120 km or 60 km x 180 km in a single pass. Corridor acquisition (d) allows for rapid coverage of certain areas in an effective way (e.g. riverbeds, borders, etc.).



*Single pass: Stereo capability*

Stereo pairs or Stereo triplets of images are collected from a single pass along one orbit for the generation of DEM data, in order to complement efficiently the HRS mission of SPOT 5. The satellite collects pairs or triplets of images over areas of interest with viewing angles between two consecutive images separated with only 15° or 20° with a B/H ratio between 0.27 and 0.4.



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### Instruments

<b>Optical System</b>	One instrument made of a two identical Korsch telescopes, each with a 200 mm aperture
<b>Detectors</b>	<ul style="list-style-type: none"> <li>▪ PAN array assembly: 28,000 pixels</li> <li>▪ MS array assembly: 4 x 7000 pixels</li> </ul>
<b>Spectral Bands</b>	Panchromatic: 0.450-0.745 mm Blue: 0.450-0.520 mm Green: 0.530-0.590 mm Red: 0.625-0.695 mm Near Infrared: 0.760-0.890 mm <i>The 5 bands are always acquired simultaneously.</i>
<b>Ground Sampling Distance (nadir)</b>	<ul style="list-style-type: none"> <li>▪ Panchromatic: 2.2m</li> <li>▪ Multispectral: 8.8m</li> </ul>
<b>Swath</b>	60km at nadir
<b>Dynamic Range at Acquisition</b>	12 bits per pixel
<b>Location Accuracy Specification</b>	<ul style="list-style-type: none"> <li>▪ 35m CE 90 without GCP within a 30° viewing angle cone</li> <li>▪ 10m CE90 for Ortho products where Reference3D is available</li> </ul>
<b>Instrument Telemetry Link Rate</b>	X-band channel - 300 MB / second

### Ground Segment

<b>Main Receiving Stations</b>	<ul style="list-style-type: none"> <li>▪ Toulouse (France)</li> <li>▪ Kiruna (Sweden)</li> </ul>
<b>S-Band Uplink Stations</b>	<ul style="list-style-type: none"> <li>▪ Kiruna (Sweden)</li> <li>▪ Inuvik (Canada)</li> </ul>
<b>Programming Center</b>	Astrium GEO-Information Services – Toulouse (France) Astrium GEO-Information Services – Chantilly, VA (USA)
<b>Production Center</b>	Astrium GEO-Information Services – Toulouse (France)
<b>Tasking Plans Refresh Frequency</b>	6 times / day / satellite
<b>Update of Weather Forecast</b>	4 times / day – fully automatic process
<b>Satellite Control Center</b>	Astrium Satellites – Toulouse (France)