

### TECHNICAL FEATURES

With SPOT 6 and SPOT 7, Astrium not only secures mission continuity of the SPOT series, which has been collecting an archive of more than 30 million of scenes since 1986: this new generation of optical satellites also features technological improvements and advanced system performance that increase reactivity and acquisition capacity as well as simplifying data access.

#### Space segment

SPOT 6 and SPOT 7 will provide 1.5metre resolution products over broad areas until 2024.

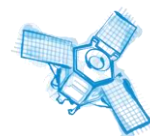
<b>Number of satellites</b>	2
<b>Launch periods</b>	SPOT 6: September 12 <sup>th</sup> , 2012 SPOT 7: to be launched Q1 2014
<b>Design lifetime</b>	10 years
<b>Size</b>	Body: ~ 1.55 x 1.75 x 2.7 m Solar array wingspan 5,4 m2
<b>Launch mass</b>	712 kg
<b>Altitude</b>	694 km
<b>Onboard Storage</b>	1 Tbits end of life (Solid State Mass Memory)

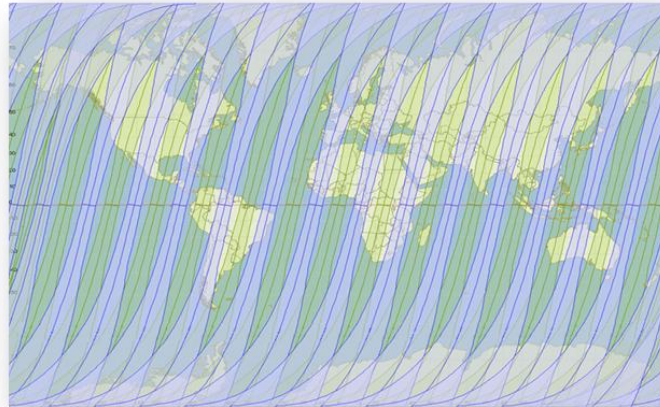
#### Orbital characteristics and viewing capability

SPOT 6 and SPOT 7 missions are designed to achieve efficiently both collection of large coverage and collection of individual targets that are possible thanks to the extreme 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 allowing quick maneuvers in all directions for targeting several areas of interest on the same pass (30° in 14s, including stabilization time)
<b>Acquisition capacity</b>	Up to 6 million sq.km daily with SPOT 6 and SPOT 7 when operating simultaneously
<b>Nominal Imaging Mode</b>	60km-swath strips oriented along North-South axis; up to 600km length
<b>Stereo capability</b>	Fore and aft mode; Single pass stereo and tri-stereo

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



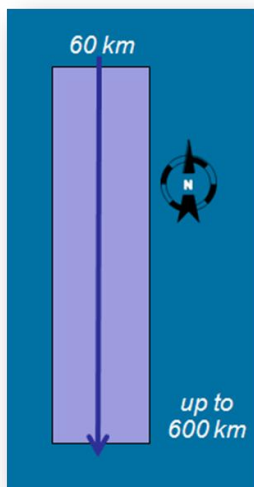


*Daily revisit for SPOT 6 and SPOT 7 constellation*

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

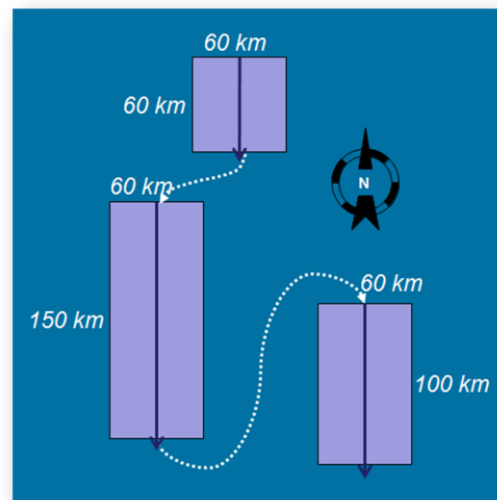
### SPOT 6 and SPOT 7 imaging modes

SPOT 6 and SPOT 7 mission takes benefits from the high agility of the satellite to offer efficient data collection capabilities making them particularly suitable to serve cartographic and monitoring applications.



a.

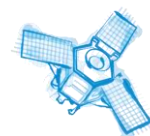
*Standard data collection: Long strip*

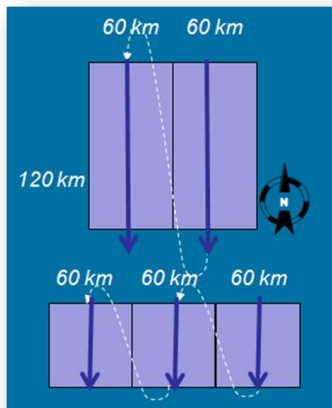


b.

*Standard data collection: Target*

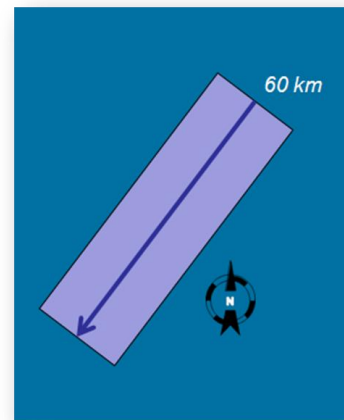
Standard data collection mode enables to acquire in one pass (a) North-South long strip of up to 600 km length. In addition, the high satellite agility allows (b) very quick moves from one scene to another along an orbit. This provides a high efficiency to complete, in the shortest time, global data coverage over a large area of interest, allow acquisition conflicts avoidance and makes possible the collection of number of distant targets in a given geographical area in a single pass.





c.

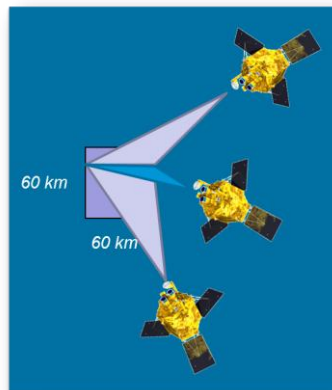
*Single pass | Multi-strip collection*



d.

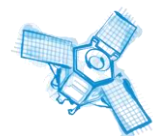
*Single pass | Corridor collection*

SPOT 6 and SPOT 7 are able to acquire (c) contiguous image segments collected from a single pass along one orbit. This provides capability to cover areas of more than 120 km x 120 km or 60 km x 180 km in a single pass. Corridor acquisition (non North-South oriented) allows rapid covering of certain areas in an effective way (e.g. riverbed, borders...)



*Single pass | Stereo capability*

Stereo pairs or Stereo triplets of images collected from a single pass along one orbit for generation of DEM data, in order to complement efficiently the HRS mission of SPOT 5. The satellite will allow to collect pairs or triplets of images over areas of interest with viewing angles between two consecutive images separated with only 15° or 20° with B/H ratio between 0,27 and 0,4



### Instruments

<b>Optical system</b>	One instrument made of 2 identical Korsch telescopes, each with a 200 mm aperture, delivering the expected swath.
<b>Detectors</b>	PAN array assembly: 28,000 pixels MS array assembly: 4 x 7000 pixels
<b>Spectral bands</b>	Panchromatic: 0.450-0.745 $\mu\text{m}$ Blue: 0.450-0.520 $\mu\text{m}$ Green: 0.530-0.590 $\mu\text{m}$ Red: 0.625-0.695 $\mu\text{m}$ Near Infrared: 0.760-0.890 $\mu\text{m}$ <i>The 5 bands are always acquired simultaneously.</i>
<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 Mbits/s

### 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 centre</b>	Astrium GEO-Information Service – Toulouse (France) Astrium GEO-Information Service – Chantilly VA (USA)
<b>Production centre</b>	Astrium GEO-Information Service – 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 centre</b>	Astrium Satellite – Toulouse (France)

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