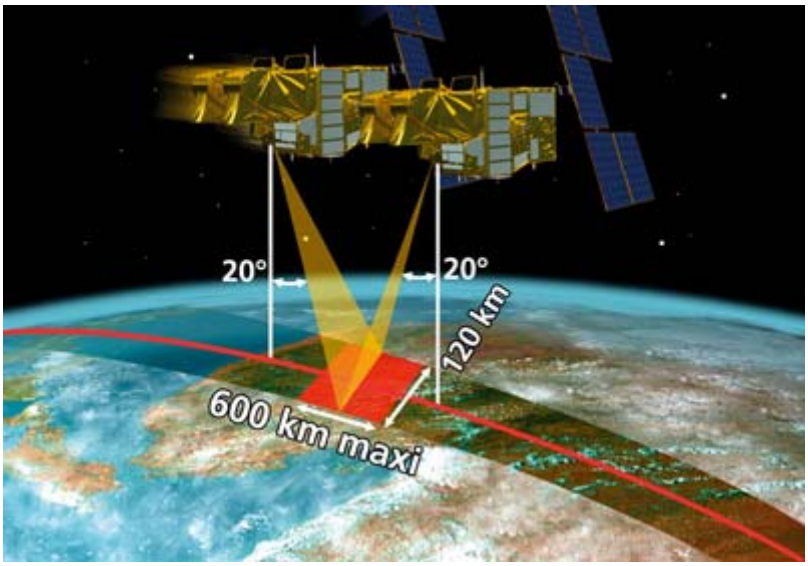
Repeat viewing capability

Spot's oblique viewing capacity allows it to image any area within a 900-kilometer swath. Oblique viewing can be used to increase the viewing frequency for a given point during a given cycle. The frequency varies with latitude: at the equator, a given area can be imaged 7 times during the same 26-day orbital cycle. At latitude 45 degrees, a given area can be imaged 11 times during the orbital cycle, i.e. 157 times yearly and an average of 2.4 days, with an interval ranging from a maximum of 4 days to a minimum of 1 day.

The constellation of Spot satellites increases dramatically this unique revisit capability: any point on 95% of the earth may be imaged any day by one of the three satellites.

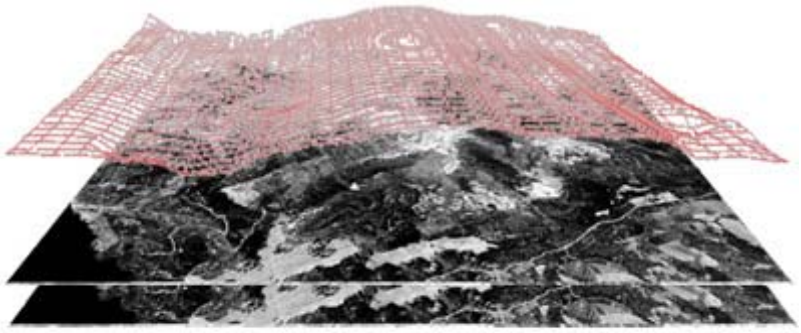
Oblique viewing: stereoscopy and accessibility



HRS on Spot 5, fore-and-aft stereoscopy performance

The HRS (High Resolution Stereoscopic) instrument on board Spot 5 has the capability to acquire two images simultaneously – one forward and one aft of the satellite - for near-instantaneous acquisition of stereopairs.

On one satellite pass, the forward-looking telescope acquires images of the ground at a viewing angle of 20° ahead of the vertical. One minute and 30 seconds later, the aft-looking telescope images the same strip at an angle of 20° behind the vertical. Simultaneous stereopair acquisition is a great advantage for the quality and accuracy of HRS digital elevation models, since the automatic correlation process is made easier by the fact that the images' radiometric parameters are identical.



The area covered is also particularly extensive: with 72 000 km2 per segment (600 km x 120 km), 30 million km2 of HRS data should be archived per year.

One or several satellites for oblique viewing acquisition

Spot stereopair acquisition remains possible by programming two images of the same area on the ground to be taken from different orbits. With three satellites in operation, theoretically it is possible to acquire stereopairs on the same day, by using two of the three satellites

Onboard data storage and transmission to ground

Spot satellites can transmit image data to the ground in two ways, depending on whether or not the spacecraft is within range of a receiving station..

As the satellite proceeds along its orbit, four situations arise concerning imagery acquisition and image data transmission to ground.

1. The satellite is within range of a Direct Receiving Station (DRS), so imagery can be down-linked in real-time provided both satellite and DRS are suitably programmed.
2. The satellite is not within range of a Spot DRS. Programmed acquisitions are executed and the image data stored on the onboard recorders.
3. The satellite is within range of a main receiving station (Kiruna or Toulouse). It can thus be programmed either to downlink image data in real-time or play back the onboard recorders and transmit image data recorded earlier during the same orbital revolution.

The rest of the time, the satellite is on standby ready to acquire imagery in accordance with up linked commands.