

Resolutions and spectral modes

➤ 2.5-metre colour

2.5-metre colour products are derived from images acquired by Spot 5.

They are obtained by merging two separate images, one in panchromatic mode at 2.5-metre resolution and the other in three-band multispectral mode at 10-metre resolution.

Because the 2.5-metre image is itself generated by merging two 5-metre images, one of the HRG instruments has to acquire three images simultaneously to produce a 2.5-metre colour image. Images thus obtained are like a three-band colour image, with a resolution of 2.5 metres and panchromatic viewing geometry. ■



2.5-metre colour (subscene) - Cairo, Egypt - 20/05/2002

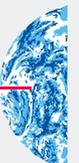
➤ 2.5-metre black and white

2.5-metre black-and-white products are derived from images acquired by Spot 5.

A 2.5-metre image is obtained from two 5-metre panchromatic images acquired simultaneously by the same HRG instrument. Each HRG instrument has a dedicated detector for this purpose. The 2.5-metre image generated by ground processing is therefore panchromatic and has the same viewing geometry as the two 5-metre images. Spot 5's panchromatic band covers wavelengths between 0.48 and 0.71 μm . ■



2.5-metre black-and-white (subscene) - Tokyo, Japan - 09/06/2002



Resolutions and spectral modes

➤ 5-metre colour

5-metre colour products are derived from images acquired by Spot 5.



5-metre colour (subscene) - Riyadh, Saudi Arabia - 02/07/2002

They are obtained by merging two separate images acquired simultaneously by the same HRG instrument, one in panchromatic mode at 5-metre resolution and the other in three-band multispectral mode at 10-metre resolution. Images thus obtained are like a three-band colour image, with a resolution of 5 metres and panchromatic viewing geometry. ■

➤ 5-metre black and white

5-metre black-and-white products are derived from images acquired by Spot 5.



5-metre black-and-white (subscene) - Toulouse, France - 08/08/2002

These images are acquired in a single panchromatic band in the visible spectrum.

In this mode, the ground pixel size is 5 metres. Spot 5's panchromatic band covers wavelengths between 0.48 and 0.71 μm . ■

➤ 10-metre colour

10-metre colour products are derived from images acquired by Spot 4 or Spot 5.

➤ **On Spot 4**, 10-metre colour products are obtained by overlaying two separate images acquired simultaneously by the HRVIR instrument, one in panchromatic mode at 10-metre resolution and the other in multispectral mode at 20-metre resolution. Because the camera is designed so that the two images register directly, generating a 10-metre colour image is relatively easy. The single image thus obtained is like a four-band, 10-metre colour product.

➤ **On Spot 5**, 10-metre colour products are derived from multispectral images acquired simultaneously in the same four spectral bands as Spot 4. Bands B1, B2 and B3 yield images at a resolution of 10 metres; the SWIR band yields 20-metre images, which are then resampled to obtain a 10-metre image. Only one image therefore needs to be acquired.



10-metre colour (subscene) - Tunis, Tunisia - 19/06/2002

The four spectral bands on Spot 4 and Spot 5 are:

- **B1** (green: 0.50 – 0.59 μm),
- **B2** (red: 0.61 – 0.68 μm),
- **B3** (near infrared: 0.78 – 0.89 μm),
- **B4** SWIR (short-wave infrared: 1.58 – 1.75 μm). ■

➤ 10-metre black and white

10-metre black-and-white products are derived from images acquired by Spot 1, Spot 2, Spot 3 and Spot 4.

These images are acquired in a single panchromatic band in the visible spectrum. In this mode, the ground pixel size is 10 metres.

➤ The panchromatic band **on Spot 1, Spot 2 and Spot 3** covers wavelengths between 0.50 and 0.73 μm .

➤ **On Spot 4**, the black-and-white band in fact corresponds to the B2 multispectral band, which covers wavelengths between 0.61 and 0.68 μm . However, for convenience and to maintain consistency with Spot 1, Spot 2 and Spot 3, this band is also termed "panchromatic". ■



10-metre black-and-white (full scene) – Shanghai, China – 01/07/2002

➤ 20-metre colour

20-metre colour products are derived from images acquired by Spot 1, Spot 2, Spot 3 and Spot 4.

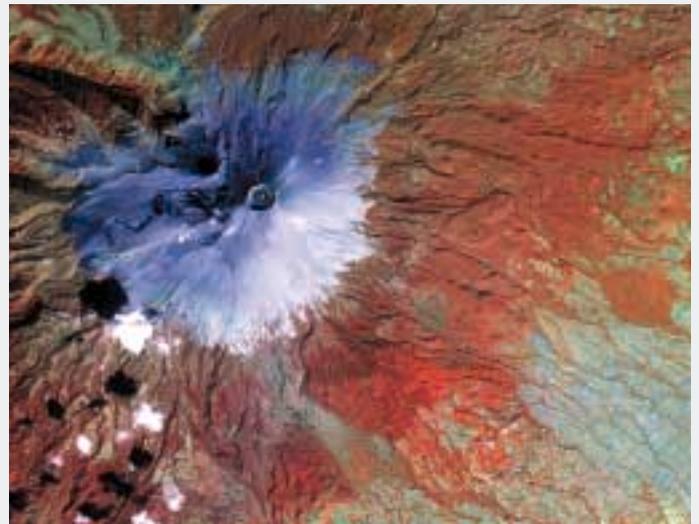
These images are acquired in multispectral mode, that is, in three spectral bands on Spot 1, Spot 2 and Spot 3, and in four bands on Spot 4. In multispectral mode, the ground pixel size is 20 metres.

➤ The three multispectral bands **on Spot 1, 2 and 3**, are:

- **B1** (green: 0.50 – 0.59 μm),
- **B2** (red: 0.61 – 0.68 μm),
- **B3** (near infrared: 0.78 – 0.89 μm).

➤ **Spot 4** multispectral imaging mode uses bands B1, B2 and B3, plus a fourth band:

- **B4** SWIR (short-wave infrared: 1.58 – 1.75 μm). ■



20-metre colour – Popocatepetl, Mexico – 21/12/2000

By combining imagery from all five Spot satellites, it is now possible to generate data at four levels of resolution (20 metres, 10 metres, 5 metres and 2.5 metres), in black and white and in colour, across the same 60 kilometre swath. This multi-resolution approach offers users the geospatial information they need at different scales.

➤ **Note:** SPOTView Plus colour products can be processed in pseudo-natural colour to render true landscape colours as faithfully as possible. ■

Resolutions and spectral modes

➤ Spot product spectral modes

Spot product	Satellite	Spectral mode	Satellite bands	Ground pixel size
2.5-metre colour	Spot 5	THR+HX	3 bands	2.5 metres
2.5-metre B&W	Spot 5	THR	1 band	2.5 metres
5-metre colour	Spot 5	HM+HX	3 bands	5 metres
5-metre B&W	Spot 5	HM	1 band	5 metres
10-metre colour	Spot 5	HI	4 bands	10 metres
	Spot 4	M+XI	4 bands	10 metres
10-metre B&W	Spot 4	M	1 band	10 metres
	Spot 1 to 3	P	1 band	10 metres
20-metre colour	Spot 4	XI	4 bands	20 metres
	Spot 1 to 3	XS	3 bands	20 metres

➤ Spot satellite spectral bands and resolutions

Spot satellite	Spectral bands	Ground pixel size	Spectral range
Spot 5	Panchromatic	2.5 metres or 5 metres	0.48 - 0.71 µm
	B1: green	10 metres	0.50 - 0.59 µm
	B2: red	10 metres	0.61 - 0.68 µm
	B3: near infrared	10 metres	0.78 - 0.89 µm
	B4: short-wave infrared (SWIR)	20 metres	1.58 - 1.75 µm
Spot 4	Monospectral - Panchromatic	10 metres	0.61 - 0.68 µm
	B1: green	20 metres	0.50 - 0.59 µm
	B2: red	20 metres	0.61 - 0.68 µm
	B3: near infrared	20 metres	0.78 - 0.89 µm
	B4: short-wave infrared (SWIR)	20 metres	1.58 - 1.75 µm
Spot 1	Panchromatic	10 metres	0.50 - 0.73 µm
Spot 2	B1: green	20 metres	0.50 - 0.59 µm
Spot 3	B2: red	20 metres	0.61 - 0.68 µm
	B3: near infrared	20 metres	0.78 - 0.89 µm

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