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) – Abu Dhabi, UAE – 07/11/2005

2.5-metre black and white

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

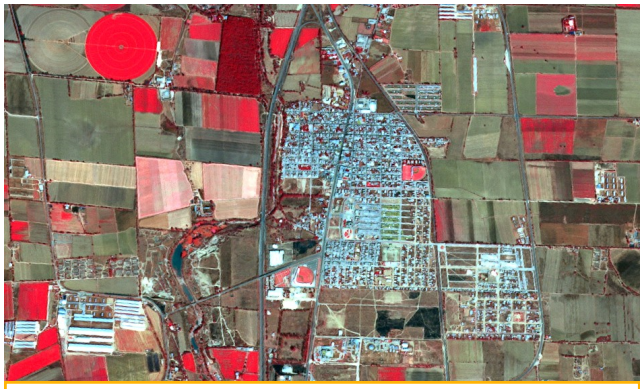
A 2.5-metre image is obtained from two 5-metre panchromatic images acquired simultaneously by the same HRG instrument. Each HRG instrument has a dedicated detector for this purpose. The 2.5-metre image generated by ground processing is therefore panchromatic and has the same viewing geometry as the two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

2.5-metre black-and-white (subscene) – Hong Kong, China – 11/12/2004

Resolutions and spectral modes

5-metre colour

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



5-metre colour (subscene) San Francisco de los Romo, Mexico - 12/11/2004

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) - Sevilla area, Spain - 22/03/2004

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

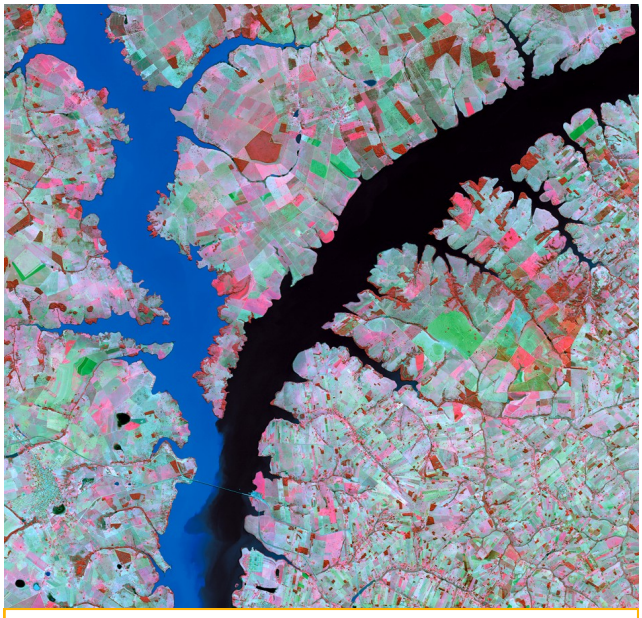
In this mode, the ground pixel size is 5 metres. SPOT 5's panchromatic band covers wavelengths between 0.48 and 0.71 µm.

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. Thanks to the design of the camera, the two images are registered directly, so 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)
Paranaïba and Grand rivers, Brazil - 17/06/2004

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).

Resolutions and spectral modes

10-metre black and white

10-metre black-and-white products are derived from images acquired by SPOT 1 to 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 (subscene) - Sevilla, Spain - 15/02/2003

Note

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

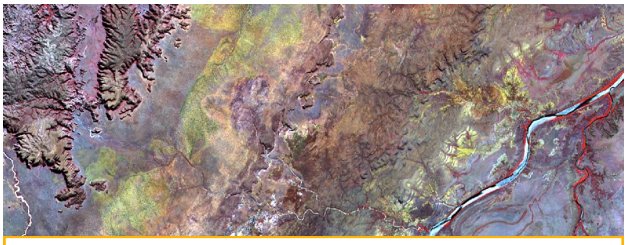
20-metre colour

20-metre colour products are derived from images acquired by SPOT 1 to 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 - Purnululu Park, Australia - 31/05/2003

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.

Resolutions and spectral modes

SPOT products

SPOT product	Satellite	Spectral mode	Spectral bands	Ground pixel size
2.5-metre colour	SPOT 5	THR + HX	B1, B2, B3	2.5 metres
2.5-metre B&W		THR	P	
5-metre colour		HM + HX	B1, B2, B3	5 metres
5-metre B&W		HM	P	
10-metre colour		HI	B1, B2, B3, B4	10 meters
	SPOT 4	M + XI	B1, B2, B3, B4	
10-metre B&W		M	M	
	SPOT 1 to 3	P	P	
20-metre colour	SPOT 4	XI	B1, B2, B3, B4	20 meters
	SPOT 1 to 3	XS	B1, B2, B3	

SPOT satellites

SPOT satellite	Spectral bands	Ground pixel size	Spectral resolutions
SPOT 5	P: panchromatic	2.5 metres or 5 metres	0,48 – 0,71 µm
	B1: green	10 metres	0,50 – 0,59 µm
	B2: red		0,61 – 0,68 µm
	B3: near infrared		0,78 – 0,89 µm
	B4: short-wave infrared (SWIR)	20 metres	1,58 – 1,75 µm
SPOT 4	M: monospectral	10 metres	0,61 – 0,68 µm
	B1: green	20 metres	0,50 – 0,59 µm
	B2: red		0,61 – 0,68 µm
	B3: near infrared		0,78 – 0,89 µm
	B4: short-wave (SWIR)		1,58 – 1,75 µm
SPOT 1, 2 & 3	P: panchromatic	10 metres	0,51 – 0,73 µm
	B1: green	20 metres	0,50 – 0,59 µm
	B2: red		0,61 – 0,68 µm
	B3: near infrared		0,78 – 0,89 µm

France, Australia, Brazil, China, Japan, Peru, Singapore, United States

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