

### Polar Orbiting Satellite Formats

The table below gives an overview of orbiting weather satellites transmitting HRPT and derived formats. APT numbers are added for comparison.

Satellite	Format	Channels	Resolution (sub sat point)	Width (pixel- s)	bits/pi- xel	Data rate (kbit/s)
NOAA	APT	1 vis, 1 IR	4 km	909	8	33.28
	HRPT	2 vis, 3 IR	1.1 km	2048	10	665.4
Seastar	SeaWiFS	8 vis	1.1 km	1288	10	665.4
Feng Yun	CHRPT	4 vis, 6 IR	1.1 km	2048	10	1330.8

### Notes

1. The numbers for APT are valid for the data before it is translated into an analogue signal in the satellite.
2. The two APT channels are chosen from the five available HRPT channels (normally one VIS and one IR channel).
3. Resolutions are valid for sub-satellite points. Towards the left and right edges of the picture, the resolution is lower (4 km at the edges), resulting in a deformed picture. APT is geometrically corrected before it is transmitted, resulting in a constant resolution of 4 km.

In the past four years, two types of satellite with derived HRPT formats have been launched, Seastar and the Chinese Feng Yun. These satellites don't transmit APT, and are interesting because some of their sensors work in the red, green and blue areas of the spectrum. By combining several channels, more or less true-colour images are possible!

Both satellites transmit many more channels than the NOAA's. Seastar has 8 channels and Fenyung 10. For Seastar the number of pixels per line was lowered from 2048 to 1288 pixels per channel, to fit the 8 channels into an HRPT frame. This has the advantage that the decoder for HRPT and SeaWiFS is exactly the same, with only a few minor software modifications required. Unfortunately, the Seastar data are now encrypted.

CHRPT contains as many as 10 channels. Instead of lowering the number of pixels, the data rate was doubled to transmit all channels. This needs some modifications to the decoder, and also needs a receiver with double bandwidth (6 MHz instead of 3 MHz). CHRPT is unencrypted. Unfortunately, the sensors are not perfectly aligned which gives problems if several