**Table 1. Characteristics of spaceborne hyperspectral sensors (either in orbit or planned for launch) for Ocean, atmosphere, land, and water applications compared with ASD spectroradiometera [modified and adopted from Thenkabail, 2015, Thenkabail et al., 2011, 2014, and Qi et al., 2011].**

**Sensor, Satellitec Spatial Spectral Swath band range band widths Irradiance Data Points Launch**

**(**meters) **(**#**) (km**) **(**m**) (**m**) (**W m-2sr-1 m-1**) (**# per hectares**) (Date)**

1. **Coastal Hyperspectral Spaceborne Imagers**

3. HICO, ISS 90 128 42 353-1080 5.7 See data in 0.81 2009-present

USA Neckel and Labs

(1984). Plot it

1. **Atmosphere\Ozone Hyperspectral Spaceborne Imagers**

3. OMI, Aura 13000x12000 740 145 270-500 0.45-1 See data in 1/16900 2004-present

USA Neckel and Labs

(1984). Plot it

3. SCIAMACHY, ENVISAT 30000 x60000 ~2000 960 212-2384 0.2-1.5 See data in 1/180000 2002-present

ESA Neckel and Labs

(1984). Plot it

1. **Land and Water Hyperspectral Spaceborne Imagers**

1. Hyperion, EO-1 30 220 (196b) 7.5 196 effective 10 nm wide See data in 11.1 2000-present

USA Calibrated bands (approx.) for all Neckel and Labs

VNIR (band 8 to 57 196 bands (1984). Plot it

427.55 to 925.85 nm and obtain

SWIR (band 79 to 224) values for

932.72 to 2395.53 nm Hyperion

bands

2. CHRIS, PROBA 25 19 17.5 200-1050 1.25-11 same as above 16 2001-present

ESA

3. HyspIRI VSWIR 60 210 145 210 bands in 10 nm wide See data in 2.77 2020+

USA 380-2500 nm (approx.) for all Neckel and Labs

210 bands (1984). Plot it

4. HyspIRI TIR 60 8 145 7 bands in 7 bands in See data in 2.77 2020+

USA 7500-12000 nm 7500-12000 nm Neckel and Labs

and 1 band in (1984). Plot it

3000-5000 nm

(3980 nm center)

5. EnMAP 30 92 30 420-1030 5-10 same as above 11.1 2015+

Germany 108 950-2450 10-20

6. PRISMA 30 250 30 400-2500 <10 same as above 11.1 2014+

Italy

7. Tiangong-1 20 64 30 1000-2500 ~25 same as above 11.1 2011+

China

1. **Land and Water Hand-held spectroradiometer**

7. ASD spectroradiometer 1134 cm2 @ 1.2 m ~2100 bands N\A ~2100 effective 1 nm wide See data in 88183 last

Nadir view 1 nm width bands (approx.) in Neckel and Labs 30+ years

18 degree between 400-2500nm (1984). Plot it

Field of view 400-2500 nm and obtain

values for

Hyperion

bands

8. Spectral Evolution 1134 cm2 @ 1.2 m 1.5 nm @ 700 nm N\A ~1000 effective 1 nm wide See data in 88183 last

SR-6500 Nadir view 3.0 nm @ 1500 nm bands (approx.) in Neckel and Labs 5+ years

18 degree 3.8 nm @ 2100 nm 400-2500nm (1984). Plot it

Field of view 350-2500 nm and obtain

values for

Hyperion

bands

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**Note**:

a = information for the table modified and adopted from Thenkabail, 2015, Thenkabail et al., 2011, Thenkabail et al., 2014, and Qi et al., 2014.

b = Of the 242 bands, 196 are unique and calibrated. These are: (A) Band 8 (427.55 nm) to band 57 (925.85 nm) that are acquired by visible and near-infrared (VNIR) sensor; and (B) Band 79 (932.72 nm) to band 224 (2395.53 nm) that are acquired by short wave infrared (SWIR) sensor

c = HICO = Hyperspectral Imager for the Coastal Ocean onboard International Space Station. OMI = Ozone Monitoring Instrument onboard AURA of NASA; SCIAMACHY (Scanning Imaging Absorption Spectrometer for Atmospheric CHartographY) of ESA; Hyperion EO-1= hyperspectral sensor onboard EO-1= Earth observing 1; CHRIS PROBA = Compact High Resolution Imaging Spectrometer Project for On Board Autonomy satellite of ESA; HyspIRI VSWIR = Hyperspectral Infrared Imager Visible to Short Wavelength InfraRed of NASA; HyspIRI TIR = Hyperspectral Infrared Imager thermal infrared of NASA; Environmental Mapping and Analysis Program of Germany; PRISMA =PRecursore IperSpettrale della Missione Applicativa of Italy.