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

Sensor, Satellite[c]	Spatial (meters)	Spectral (#)	Swath (km)	band range (μm)	band widths (μm)	Irradiance (W $m^{-2}sr^{-1}$ μm^{-1})	Data Points (# per hectares)	Launch (Date)
I. Coastal Hyperspectral Spaceborne Imagers								
3. HICO, ISS USA	90	128	42	353-1080	5.7	See data in Neckel and Labs (1984). Plot it	0.81	2009-present
II. Atmosphere\Ozone Hyperspectral Spaceborne Imagers								
3. OMI, Aura USA	13000x12000	740	145	270-500	0.45-1	See data in Neckel and Labs (1984). Plot it	1/16900	2004-present
3. SCIAMACHY, ENVISAT ESA	30000 x60000	~2000	960	212-2384	0.2-1.5	See data in Neckel and Labs (1984). Plot it	1/180000	2002-present
III. Land and Water Hyperspectral Spaceborne Imagers								
1. Hyperion, EO-1 USA	30	220 (196[b])	7.5	196 effective Calibrated bands VNIR (band 8 to 57 427.55 to 925.85 nm SWIR (band 79 to 224) 932.72 to 2395.53 nm	10 nm wide (approx.) for all 196 bands	See data in Neckel and Labs (1984). Plot it and obtain values for Hyperion bands	11.1	2000-present
2. CHRIS, PROBA ESA	25	19	17.5	200-1050	1.25-11	same as above	16	2001-present
3. HyspIRI VSWIR USA	60	210	145	210 bands in 380-2500 nm	10 nm wide (approx.) for all 210 bands	See data in Neckel and Labs (1984). Plot it	2.77	2020+
4. HyspIRI TIR USA	60	8	145	7 bands in 7500-12000 nm and 1 band in	7 bands in 7500-12000 nm	See data in Neckel and Labs (1984). Plot it	2.77	2020+

				3000-5000 nm (3980 nm center)				
5. EnMAP Germany	30	92 108	30	420-1030 950-2450	5-10 10-20	same as above	11.1	2015+
6. PRISMA Italy	30	250	30	400-2500	<10	same as above	11.1	2014+
7. Tiangong-1 China	20	64	30	1000-2500	~25	same as above	11.1	2011+
IV. Land and Water Hand-held spectroradiometer								
7. ASD spectroradiometer	1134 cm^2 @ 1.2 m Nadir view 18 degree Field of view	~2100 bands 1 nm width between 400-2500 nm	N\A	~2100 effective bands	1 nm wide (approx.) in 400-2500nm	See data in Neckel and Labs (1984). Plot it and obtain values for Hyperion bands	88183	last 30+ years
8. Spectral Evolution SR-6500	1134 cm^2 @ 1.2 m Nadir view 18 degree Field of view	1.5 nm @ 700 nm 3.0 nm @ 1500 nm 3.8 nm @ 2100 nm 350-2500 nm	N\A	~1000 effective bands	1 nm wide (approx.) in 400-2500nm	See data in Neckel and Labs (1984). Plot it and obtain values for Hyperion bands	88183	last 5+ years

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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.