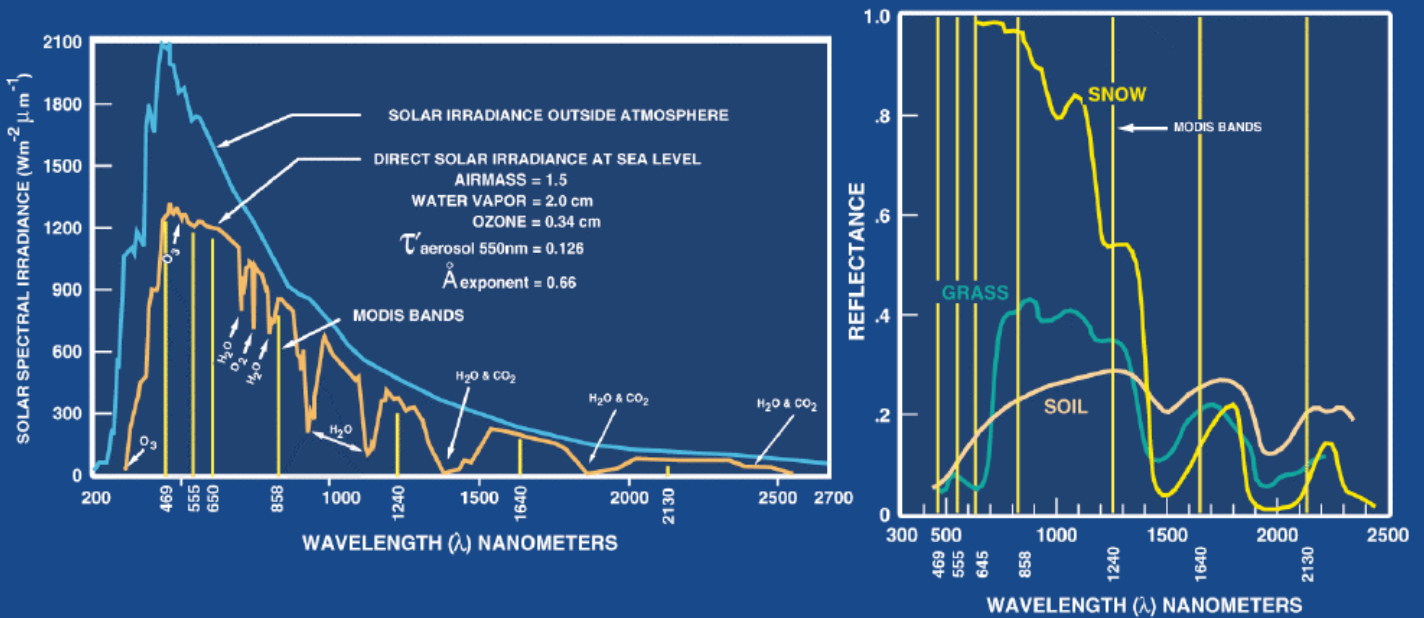
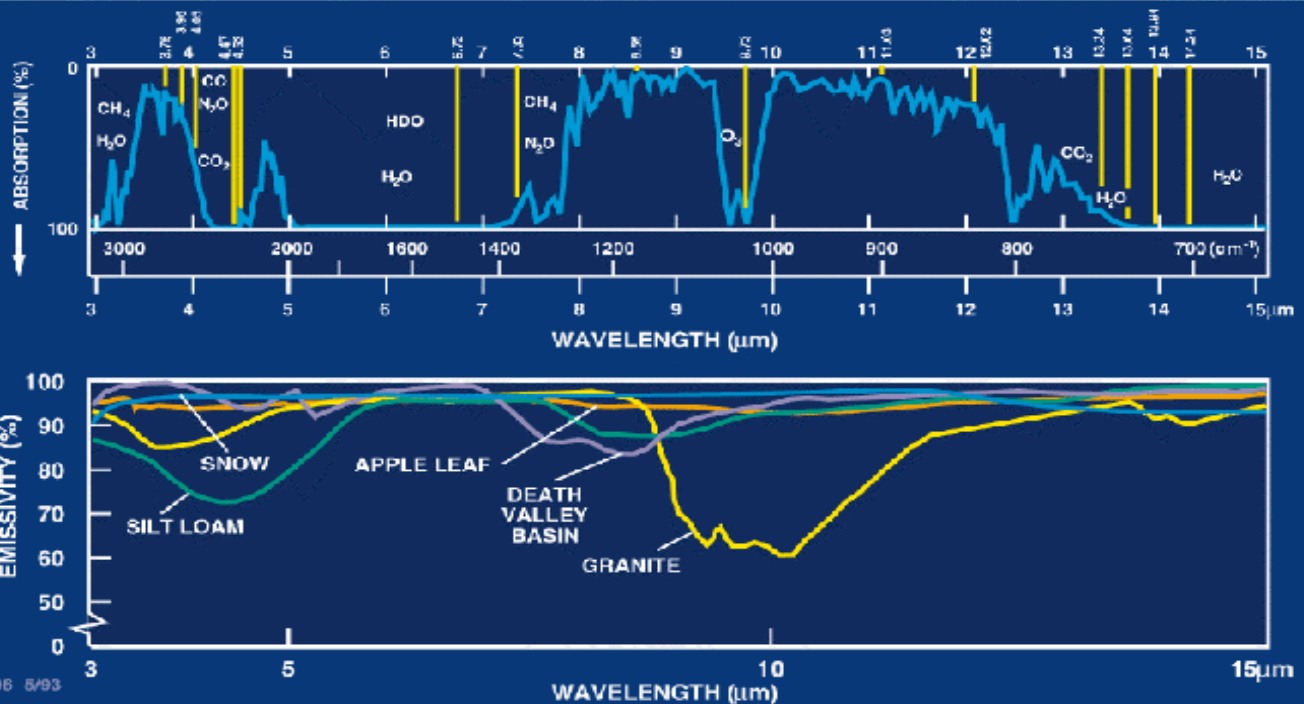


# Hydra Lab Reference Materials

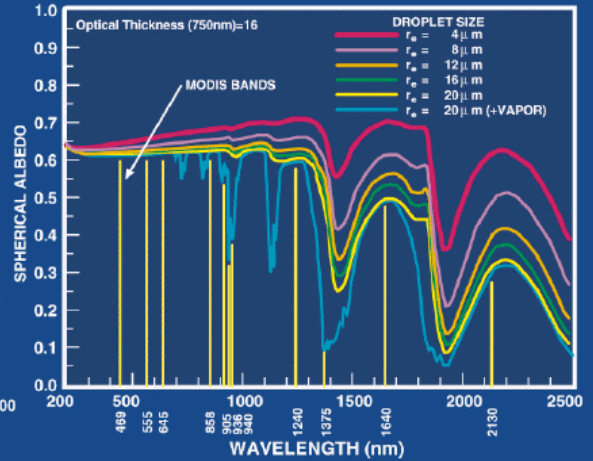
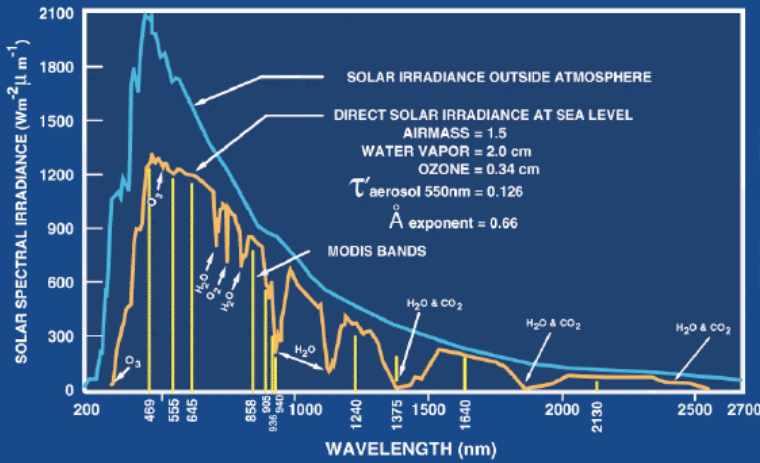
## LAND-SOLAR RADIATION



## LAND - THERMAL RADIATION

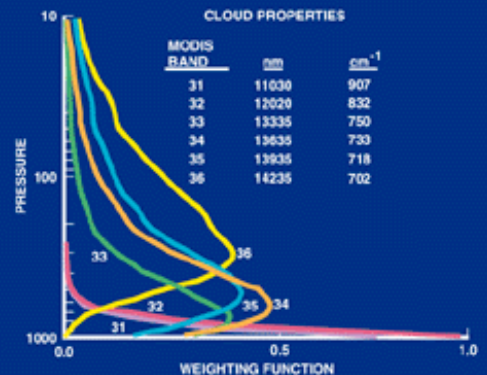
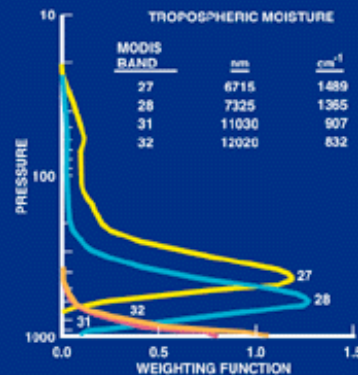
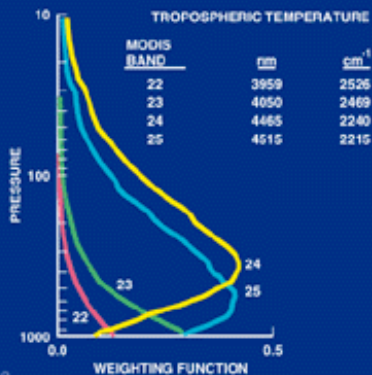
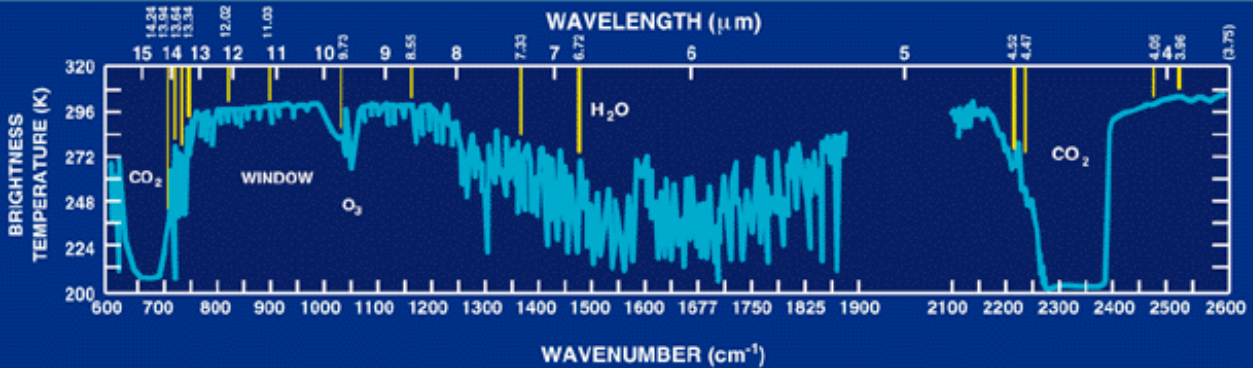


# ATMOSPHERE-SOLAR RADIATION



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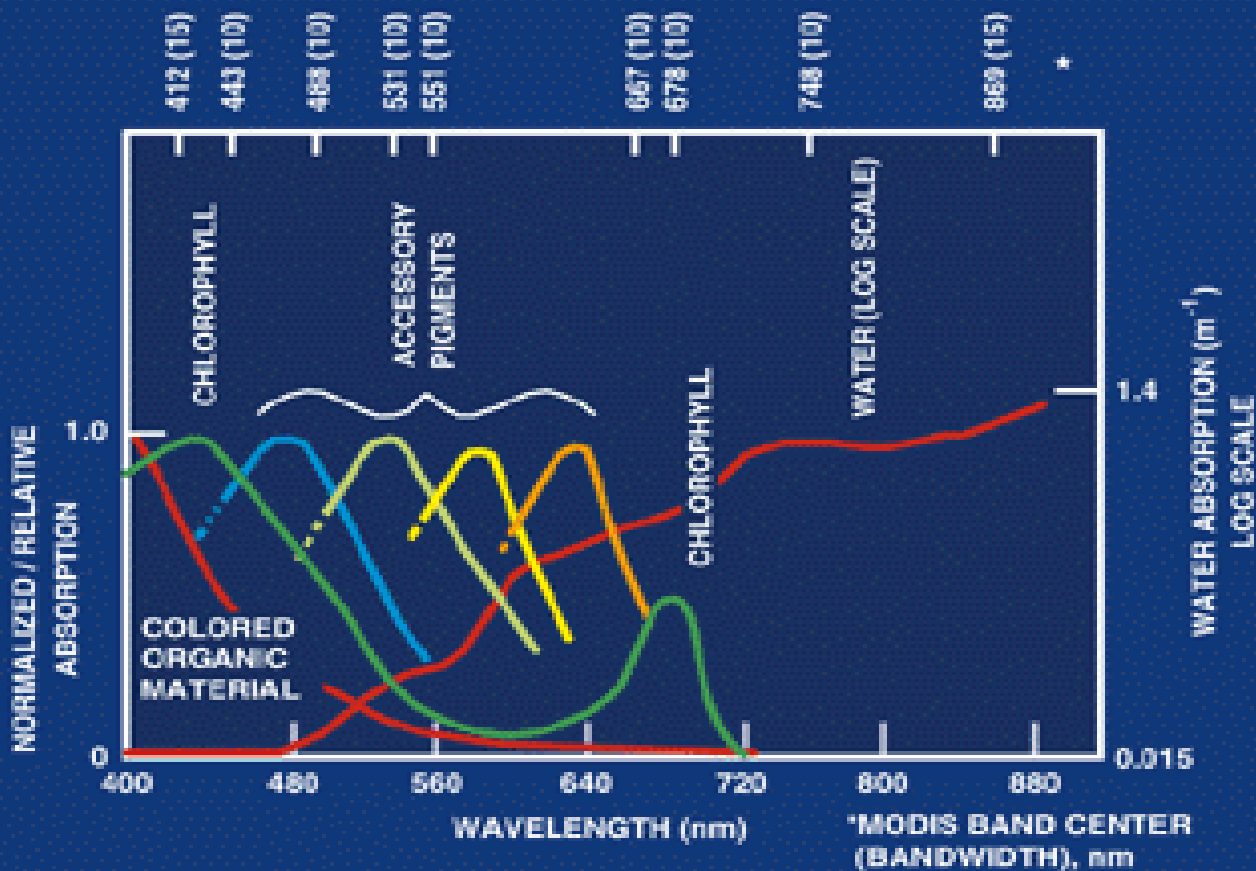
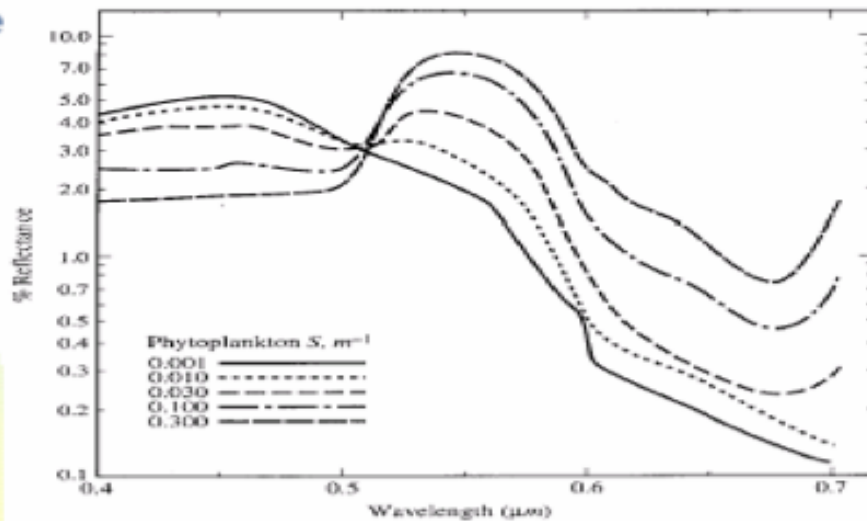
# ATMOSPHERE - THERMAL RADIATION



C351.002 5/93

## Reflectance of ocean water

Calculated change in bulk reflectance of ocean water with increasing concentration of phytoplankton.



# VIIRS Instrument Characteristics

	Band No.	Wave-length (μm)	Horiz Sample Interval (km Downtrack x Crosstrack)		Driving EDRs	Radiance Range	Ltyp or Ttyp	Signal to Noise Ratio (dimensionless) or NEΔT (Kelvins)		
			Nadir	End of Scan				Required	Predicted	Margin
VIS/NIR FPA Silicon PIN Diodes	M1	0.412	0.742 x 0.259	1.60 x 1.58	Ocean Color Aerosols	Low High	44.9 155	352 316	441 807	25% 155%
	M2	0.445	0.742 x 0.259	1.60 x 1.58	Ocean Color Aerosols	Low High	40 146	380 409	524 926	38% 126%
	M3	0.488	0.742 x 0.259	1.60 x 1.58	Ocean Color Aerosols	Low High	32 123	416 414	542 730	30% 76%
	M4	0.555	0.742 x 0.259	1.60 x 1.58	Ocean Color Aerosols	Low High	21 90	362 315	455 638	26% 102%
	I1	0.640	0.371 x 0.387	0.80 x 0.789	Imagery	Single	22	119	146	23%
	M5	0.672	0.742 x 0.259	1.60 x 1.58	Ocean Color Aerosols	Low High	10 68	242 360	298 522	23% 45%
	M6	0.746	0.742 x 0.776	1.60 x 1.58	Atmospheric Corr'n	Single	9.6	199	239	20%
	I2	0.865	0.371 x 0.387	0.80 x 0.789	NDVI	Single	25	150	225	50%
	M7	0.865	0.742 x 0.259	1.60 x 1.58	Ocean Color Aerosols	Low High	6.4 33.4	215 340	388 494	81% 45%
CCD	DNB	0.7	0.742 x 0.742	0.742 x 0.742	Imagery	Var.	6.70E-05	6	5.7	-5%
S/MWIR PV HgCdTe (HCT)	M8	1.24	0.742 x 0.776	1.60 x 1.58	Cloud Particle Size	Single	5.4	74	98	32%
	M9	1.378	0.742 x 0.776	1.60 x 1.58	Cirrus/Cloud Cover	Single	6	83	155	88%
	I3	1.61	0.371 x 0.387	0.80 x 0.789	Binary Snow Map	Single	7.3	6.0	97	1523%
	M10	1.61	0.742 x 0.776	1.60 x 1.58	Snow Fraction	Single	7.3	342	439	28%
	M11	2.25	0.742 x 0.776	1.60 x 1.58	Clouds	Single	0.12	10	17	66%
	I4	3.74	0.371 x 0.387	0.80 x 0.789	Imagery Clouds	Single	270 K	2.500	0.486	415%
	M12	3.70	0.742 x 0.776	1.60 x 1.58	SST	Single	270 K	0.396	0.218	82%
	M13	4.05	0.742 x 0.259	1.60 x 1.58	SST Fires	Low High	300 K 380 K	0.107 0.423	0.063 0.334	69% 27%
LWIR PV HCT	M14	8.55	0.742 x 0.776	1.60 x 1.58	Cloud Top Properties	Single	270 K	0.091	0.075	22%
	M15	10.763	0.742 x 0.776	1.60 x 1.58	SST	Single	300 K	0.070	0.038	85%
	I5	11.450	0.371 x 0.387	0.80 x 0.789	Cloud Imagery	Single	210 K	1.500	0.789	90%
	M16	12.013	0.742 x 0.776	1.60 x 1.58	SST	Single	300 K	0.072	0.051	42%

# MODIS Instrument Characteristics

Band	Wavelength (nm)	Resolution (m)	Primary Use	Band	Wavelength ( $\mu\text{m}$ )	Resolution (m)	Primary Use	
1	620–670	250	Land/Cloud/Aerosols Boundaries	20	3.660–3.840	1000	Surface/Cloud Temperature	
2	841–876	250		21	3.929–3.989	1000		
3	459–479	500	Land/Cloud/Aerosols Properties	22	3.929–3.989	1000		
4	545–565	500		23	4.020–4.080	1000		
5	1230–1250	500		24	4.433–4.498	1000	Atmospheric Temperature	
6	1628–1652	500		25	4.482–4.549	1000		
7	2105–2155	500		Ocean Color/ Phytoplankton/ Biogeochemistry	26	1.360–1.390	1000	Cirrus Clouds Water Vapor
8	405–420	1000	27		6.535–6.895	1000		
9	438–448	1000	28		7.175–7.475	1000		
10	483–493	1000	29		8.400–8.700	1000	Cloud Properties	
11	526–536	1000	30		9.580–9.880	1000	Ozone	
12	546–556	1000	31		10.780–11.280	1000	Surface/Cloud Temperature	
13	662–672	1000	32		11.770–12.270	1000		
14	673–683	1000	Atmospheric Water Vapor		33	13.185–13.485	1000	Cloud Top Altitude
15	743–753	1000			34	13.485–13.785	1000	
16	862–877	1000			35	13.785–14.085	1000	
17	890–920	1000		36	14.085–14.385	1000		
18	931–941	1000						
19	915–965	1000						