

Geology 100

Notes on Planet Earth version 3.0

Review - Exam 4

Chapter 14

Some basic definitions



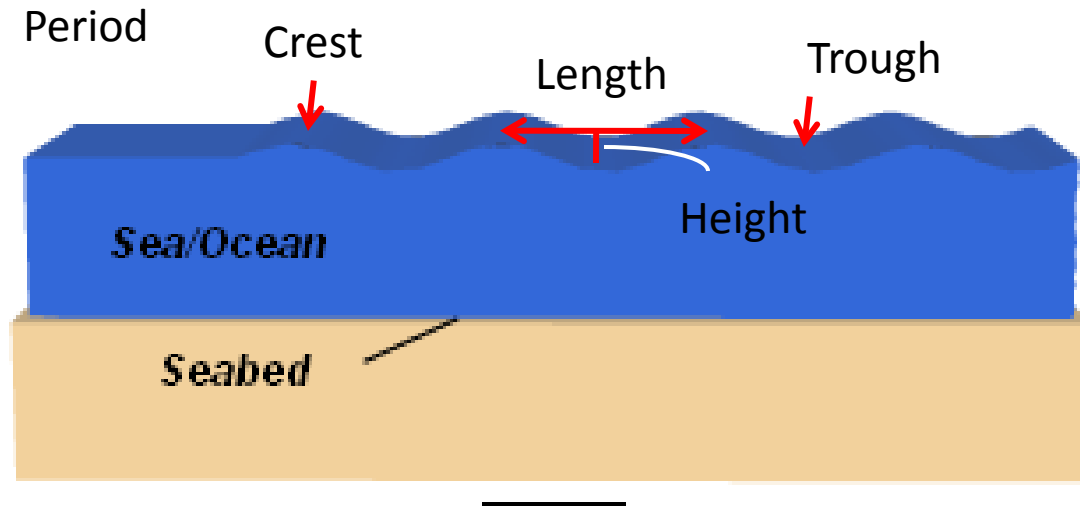
Wind – the generator of ocean waves

Wave Relationships with Constant Wind Speed

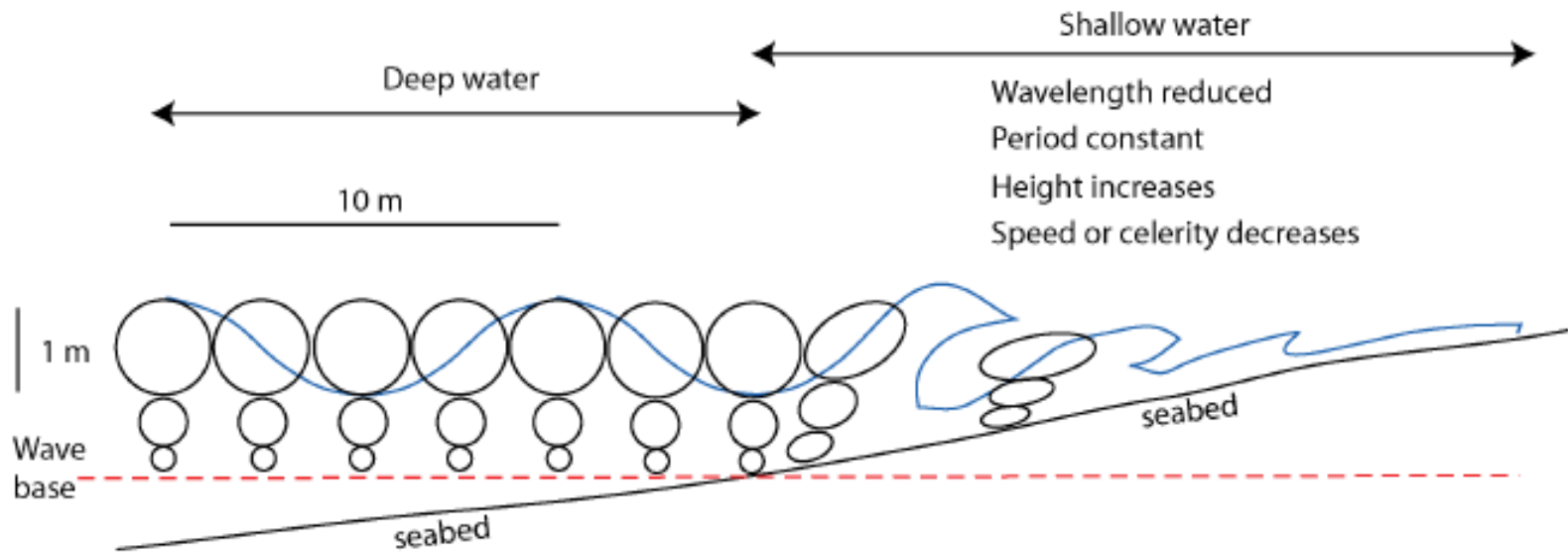
Fetch	Wave Height	Wavelength	Period	Speed
19 km (12mi)	2 m (6 ft)	35 m (115 ft)	4 sec	21 kph (13 mph)
93 km (58 mi)	3 m (10 ft)	70 m (230 ft)	6 sec	32 kph (20 mph)
370 km (230 mi)	5 m (16 ft)	100 m (330 ft)	8 sec	43 kph (27 mph)
740 km (460 mi)	7 m (23 ft)	150 m (500 ft)	10 sec	53 kph (33 mph)
1,850 km (1,150 mi)	12 m (39 ft)	200 m (660 ft)	11 sec	64 kph (40 mph)

Data for wind speed = 93 kph (58 mph)

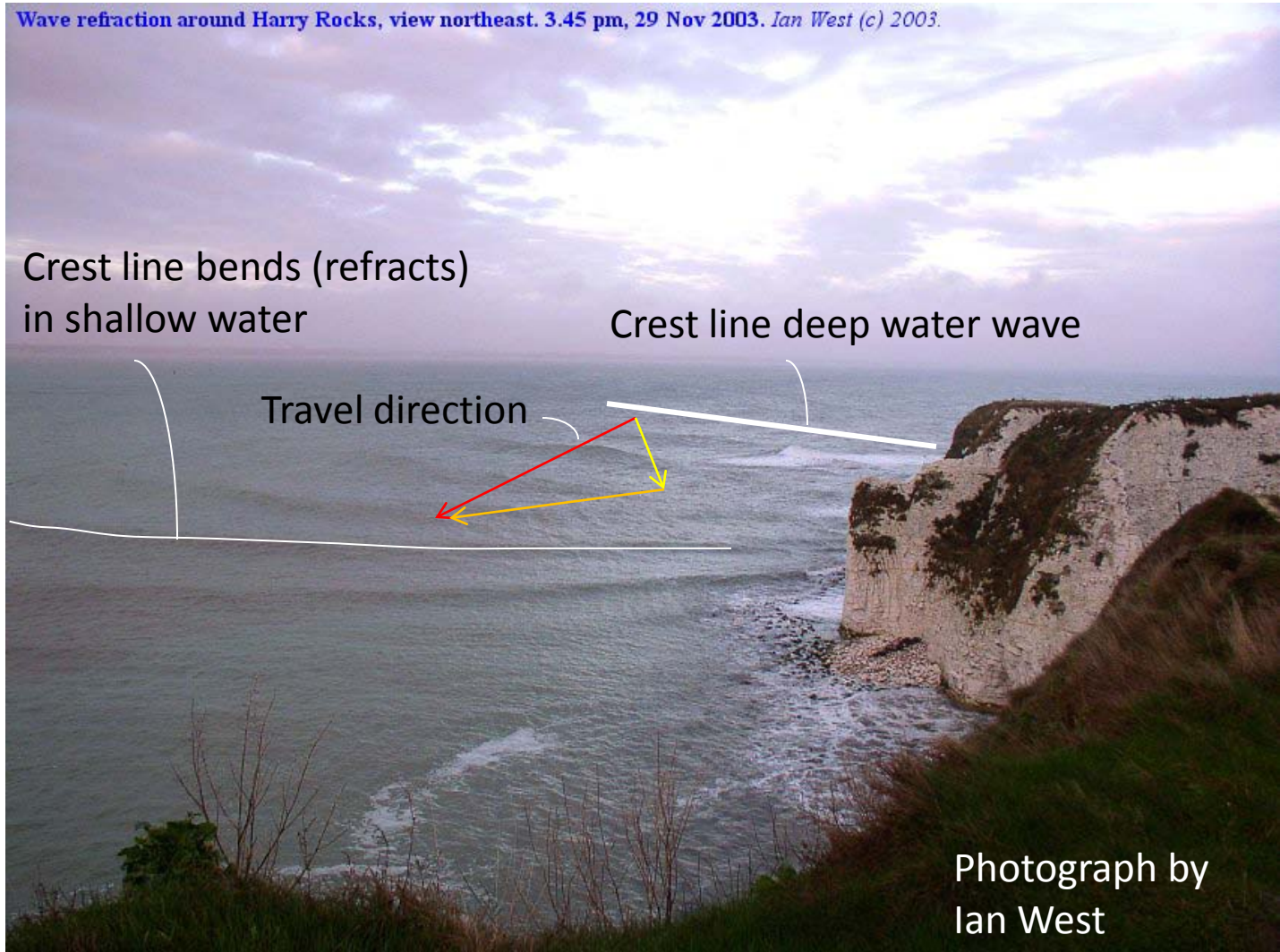
More definitions



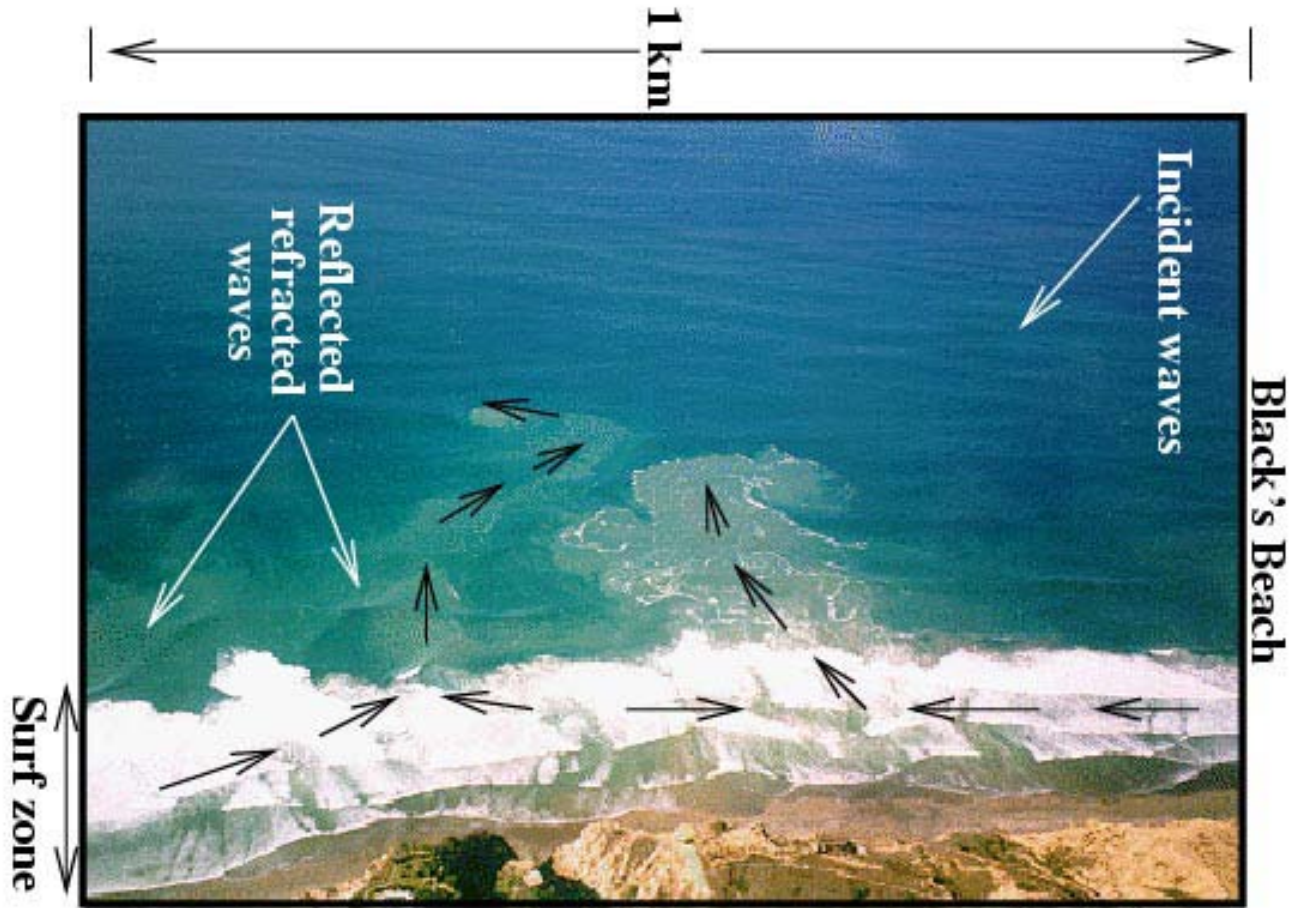
The concept of wave base



Wave refraction



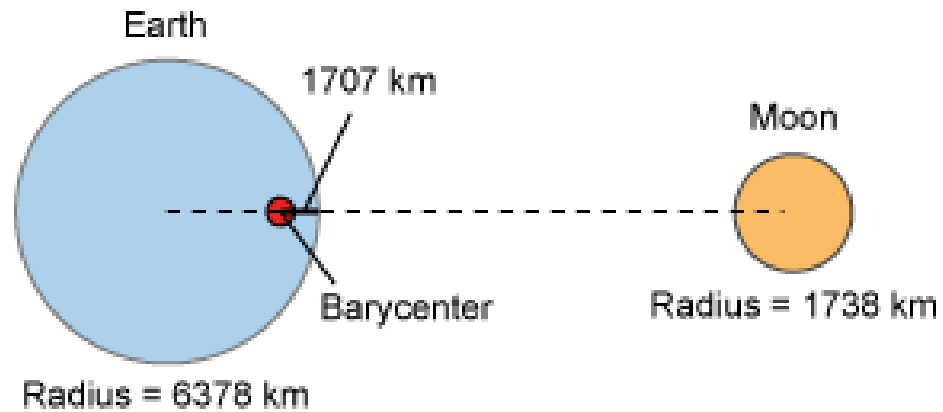
Rip currents



The swash zone

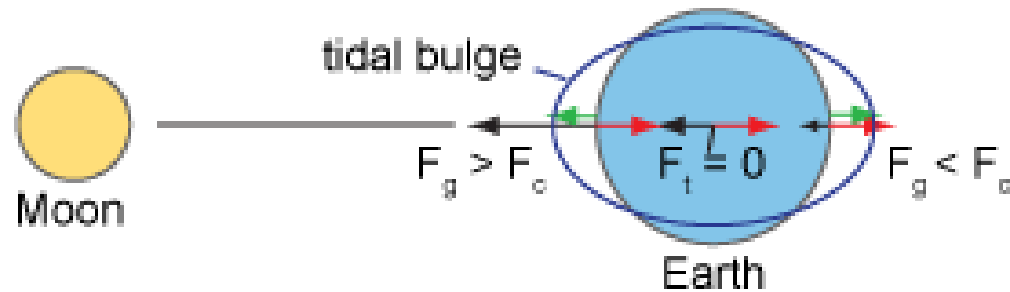


The tides

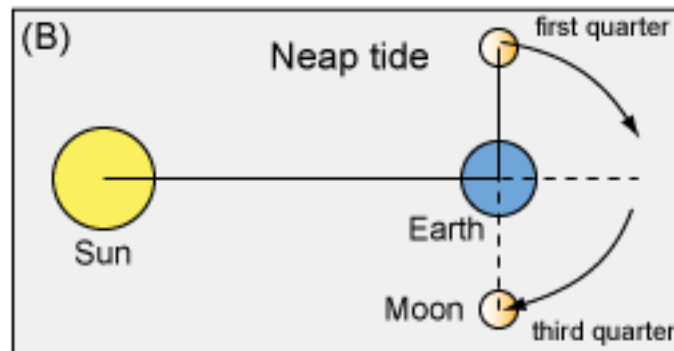
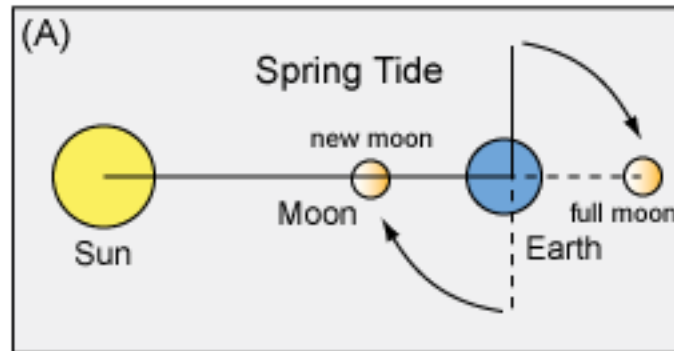


Gravitational versus inertial forces

- ← F_g (gravitational force due to Moon)
- F_c (centrifugal force due to Earth's revolution around barycenter)
- ← F_t = the resultant tide-risign force due to the moon



Neap and spring tides



view is looking down on North Pole of planet Earth