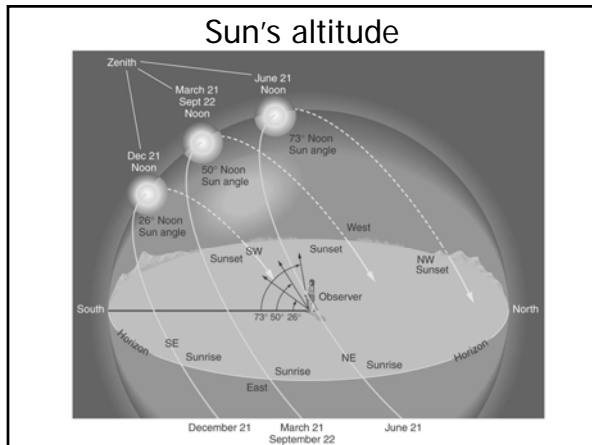


Chapter 1, part II



Insolation

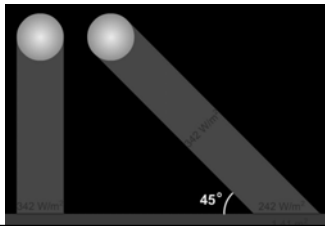
- Insolation:
 - 'In'-incoming
 - 'Sol'-solar
 - 'Ation'-radiation
- Insolation affected by day length and sun's altitude
- Day length: Duration of sunlight
- Sun altitude: Angle of sun's rays

Temporal Variations of Latitudinal Insolation

- Variations grouped into three sections:
 - Equator to Tropics of Cancer and Capricorn
 - Tropics to Circles
 - Circles to Poles

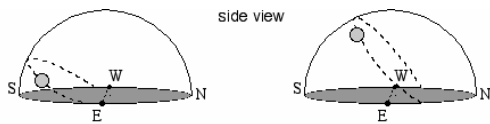
Equator to Tropics of Cancer & Capricorn

- Receives constant direct insolation throughout year
- Direct sunlight varies between the two Tropics, but angle of sun's altitude is never far from 90°
- Region has a "surplus" of energy



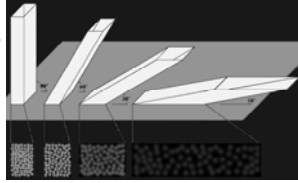
Tropics to Circles

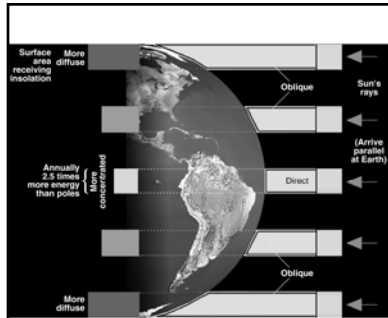
- From 23.5° North and South to 66.5° North and South
- Region never receives the direct sunlight but the Sun's altitude is high in the sky around the summer solstice
- Receives varying amount of insolation, based on time of year



Circles to Poles

- From 66.5° north and south to Poles
- Never receives direct rays (90°) sunlight
- Sun's altitude is always low.
- Receives 24 hours of sunlight in summer and 24 hours of darkness in winter





- Annual insolation is greatest at the lower latitudes and lowest the farther from the lower latitudes
- Over the years, the total annual insolation remains generally constant.

Time

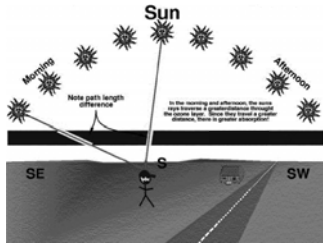
- Time used to be determined locally: noon was the time the sun was the highest in the sky.
- Standard time created for railroad schedules in late 1800's



DENVER PACIFIC R. R. TIME TABLE.						
Pla.	Dep. M.	Long. P.M.	STATIONS.	Long. P.M.	Dep.	P.M.
A.M.	8 15	8 30	Denver	8 30	P.M.	8 50
	8 30	8 45	Golden	8 45		9 00
	8 45	9 00	Windsor	9 00		9 15
	9 00	9 15	Windsor	9 15		9 30
	9 15	9 30	Windsor	9 30		9 45
	9 30	9 45	Windsor	9 45		10 00
	9 45	10 00	Windsor	10 00		10 15
	10 00	10 15	Windsor	10 15		10 30
	10 15	10 30	Windsor	10 30		10 45
	10 30	10 45	Windsor	10 45		11 00
	10 45	11 00	Windsor	11 00		11 15
	11 00	11 15	Windsor	11 15		11 30
	11 15	11 30	Windsor	11 30		11 45
	11 30	11 45	Windsor	11 45		12 00
	11 45	12 00	Windsor	12 00		12 15
	12 00	12 15	Windsor	12 15		12 30
	12 15	12 30	Windsor	12 30		12 45
	12 30	12 45	Windsor	12 45		1 00
	12 45	1 00	Windsor	1 00		1 15
	1 00	1 15	Windsor	1 15		1 30
	1 15	1 30	Windsor	1 30		1 45
	1 30	1 45	Windsor	1 45		2 00
	1 45	2 00	Windsor	2 00		2 15
	2 00	2 15	Windsor	2 15		2 30
	2 15	2 30	Windsor	2 30		2 45
	2 30	2 45	Windsor	2 45		3 00
	2 45	3 00	Windsor	3 00		3 15
	3 00	3 15	Windsor	3 15		3 30
	3 15	3 30	Windsor	3 30		3 45
	3 30	3 45	Windsor	3 45		4 00
	3 45	4 00	Windsor	4 00		4 15
	4 00	4 15	Windsor	4 15		4 30
	4 15	4 30	Windsor	4 30		4 45
	4 30	4 45	Windsor	4 45		5 00
	4 45	5 00	Windsor	5 00		5 15
	5 00	5 15	Windsor	5 15		5 30
	5 15	5 30	Windsor	5 30		5 45
	5 30	5 45	Windsor	5 45		6 00
	5 45	6 00	Windsor	6 00		6 15
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	6 45	7 00	Windsor	7 00		7 15
	7 00	7 15	Windsor	7 15		7 30
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	7 45	8 00	Windsor	8 00		8 15
	8 00	8 15	Windsor	8 15		8 30
	8 15	8 30	Windsor	8 30		8 45
	8 30	8 45	Windsor	8 45		9 00
	8 45	9 00	Windsor	9 00		9 15
	9 00	9 15	Windsor	9 15		9 30
	9 15	9 30	Windsor	9 30		9 45
	9 30	9 45	Windsor	9 45		10 00
	9 45	10 00	Windsor	10 00		10 15
	10 00	10 15	Windsor	10 15		10 30
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	5 00	5 15	Windsor	5 15		5 30
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	3 15					

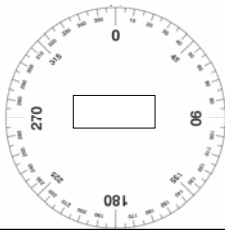
Time zones

- World equally divided into 24 time zones – to mimic the actual rotation of Earth in a day
- Time zones designed with high sun occurring at local noon

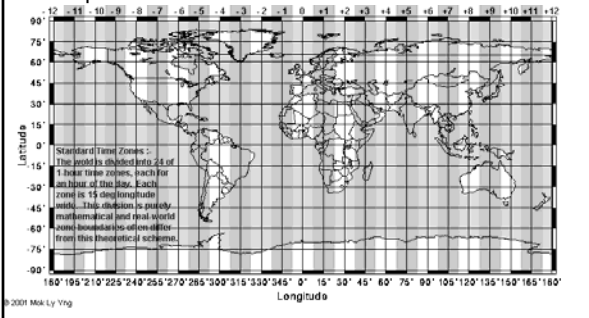


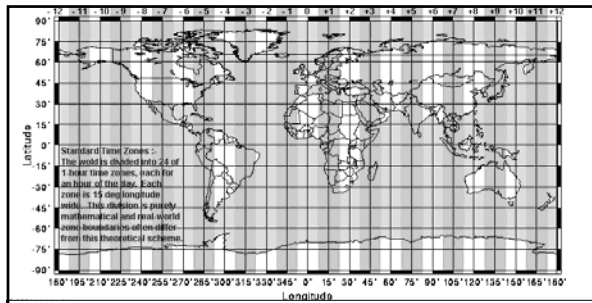
Time Zones

- To understand how much distance is included with each time zone:
 - Earth is a sphere, which takes 360° to complete go around (or East and West longitude combined)
 - 360° divided by 24 = ... 15° longitude

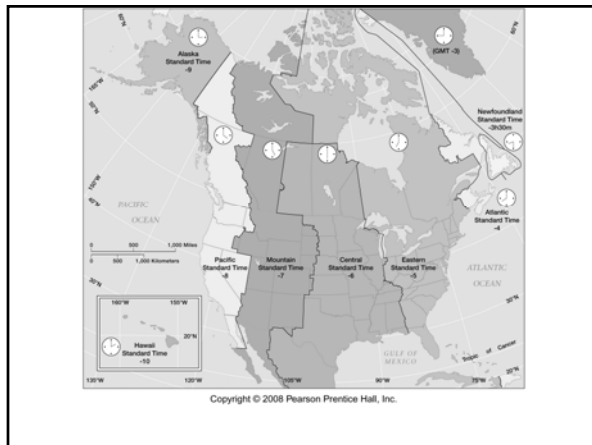


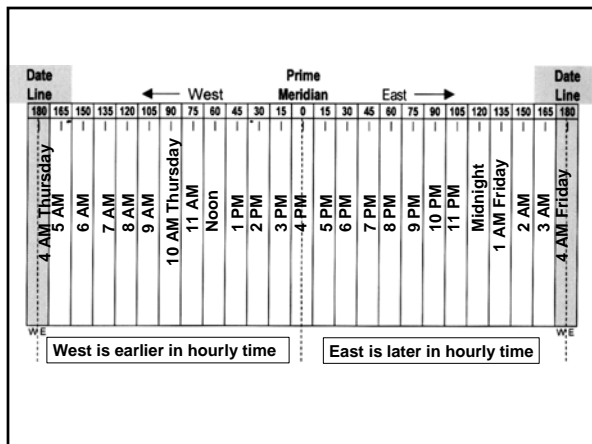
- Each time zone is 15° of longitude wide (theoretically)
- Beginning at 0° , you add 15° , resulting in: 0° , 15° , 30° , 45° , etc.
- Each portion extends 7.5° to each side of the meridian





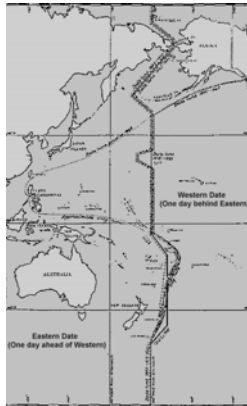
Each time zone is 1 hour different from the adjacent zone
 -Traveling west - one hour is subtracted
 -Traveling east - one hour is added



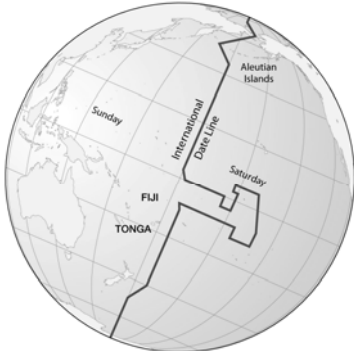


International Date Line

- International date line – an imaginary line that marks the boundary between two *days*
- Necessary to prevent the accumulation or loss of days as travelers move around the globe as compared to the day reckoned by people remaining in a fixed location



- Add a day when going west (US to Asia)
- Subtract a day when traveling east (Asia to US)



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- Crossing the International Date Line changes the day – *not the time*

If it is noon Monday in New Zealand, what time and day is it in Anchorage, Alaska?

