

KEYWORDS AND PHRASES WITH DEFINITIONS FOR LESSON 15

Anemometer- often called the wind gauge and measures the speed of the wind

Apogee - a point in the orbit where the orbiting body is farthest from the body it orbits; often connected to the moon orbiting the earth

Autumnal equinox - usually around September 22/23rd, when the sun crosses the plane of the equator and day and night are the same length; marks the beginning of autumn in the Northern Hemisphere; occurs twice in a calendar year (see vernal equinox)

Barometer - an instrument for measuring atmospheric pressure; which may indicate a change in weather

Bell buoys - a navigational buoy that has a bell that sounds when the wave motion moves it

Daylight saving time - many areas in the world modify their time zones by one hour or more at various times in the year; since 2007 in the United States, most states (Arizona and Hawaii do not) change from 2:00 LST (local standard time) to 3:00 LDT (local daylight time) on the 2nd Sunday in March; on the first Sunday in November, the time changes from 2:00 LDT to 1:00 LST

Discus buoy - round shaped, moored buoys that measure from 10 m to 12m and record data

Diurnal tides - one high and one low tide each day or one tidal cycle per day

Ebb - the flowing back of the tide from high water to low water

Flow - the rise of the tidal water from low to high tide

Local daylight time - *see Daylight saving time*

Local standard time - *see Daylight saving time*

Mean high water - the average of all the highest levels of water over a certain elevation over a period of time

Mean low water - the average of all the lowest levels of water over a certain elevation over a period of time

Mixed tides - some areas of the world have high tides and low tides that are of varying levels; a high tide may be a 10 foot tide, the next high tide could be a 7 foot; the same with the low tide; a low tide could be a 3 foot tide, the next could be a 1 foot

Moon phases - *see phases of the moon*

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National Data Buoy Center – part of NOAA’s National Weather Service (NWS); the NDBC designs, develops, operates and maintains a network of data collecting buoys and coastal stations on the Internet at www.ndbc.noaa.gov

Neap tides – When the sun and moon are at a 90° angle from each other when viewed from the earth, the gravitational forces of the sun and the moon tend to cancel each other out, and the tidal range does not fluctuate as much. Neap tides occur at the first quarter moon and third quarter moon

Perigee – the point at which an orbiting body makes its closest approach to the body it orbits; often refers to the moon as it orbits the earth

Phases of the moon - the appearance of the moon’s illuminated portion as it orbits the earth in relation to the position of the sun and rotation and orbits of the earth and moon; phases are described as viewed from earth in the Northern Hemisphere; phases are New moon (no moon visible or 0%), Waxing crescent (1-49% moon visible on right side), First quarter moon (50% of the moon visible on the right side), Waxing gibbous (51-99% of the moon visible on the right side), Full moon (100% of the moon visible), Waning gibbous (51-99% of the moon visible on the left side), Last/Third quarter moon (50% of the moon visible on the left side), Waning crescent (1-49% of the moon visible on the left side)

Semidiurnal tides - two high and two low tides each day or two tidal cycles per day (Note: The Gulf of Maine has semidiurnal tides)

Spring tides – When the sun, moon, and earth form a line, the tidal range is at its maximum or the tidal highs are higher, tidal lows are lower, slack water times, the time when there is little movement one way or the other, are shorter, and tidal currents are faster. Spring tides occur at the new moon and full moon

Station 44027 (Jonesport, Maine) – one of the moored buoys (3 m discus) of the National Data Buoy system that records data for Downeast Maine

Summer solstice – the day at which the sun is at its highest altitude in the sky usually June 21 in the Northern Hemisphere (December 21 in the Southern Hemisphere); the day the sun is at its northernmost point in the sky for the Northern Hemisphere (southernmost point for the Southern Hemisphere); the day that is called the longest day/shortest night for the Northern Hemisphere; summer solstice occurs because the axis tilt of the earth does not change, continually pointing to the same point in the sky as the earth revolves around the sun; in the summer solstice for the Northern Hemisphere, the earth is tipped toward the sun

Tidal bore – a wave of water of the incoming tide (flood tide) moving in the opposite direction of the normal flow of water in a river or stream; for example, the river is flowing down stream, the bore is moving upstream; may be a few inches to several

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feet high, depending on the tidal situation at the time; generally occurs when water from a wider bay moves into an inlet or river, usually occurs in areas where there is a fairly large tidal range

Tide charts/tables - a predictive chart that uses prior known data to depict expected tides for a future period of time in a specific location; most tide charts will state that the information is an estimate; often data found on a tide chart may include date, time of day, range in feet of the expected tide, mean high water, mean low water

Tidal current tables – these tables describe the horizontal movement of water in response to tides; current is more pronounced at the coasts and can create a safety concern in normal conditions and more of a safety concern during spring tides or storm conditions; tidal current tables show the speed of this current in particular locations

Tide tables/chart – *see tide charts/tables*

Vernal equinox - usually around March 20/21, when the sun crosses the plane of the equator and day and night are the same length; marks the beginning of spring in the Northern Hemisphere; occurs twice in a calendar year (see autumnal equinox)

Watch circle radius – the distance around the weather buoy from which data is compiled; usually listed on the Weather Station data report

Weather buoy/station terms – Moored buoys (measure 1.5 m to 12 m) or drifting buoys (measure 30 to 40 cm) collect weather and ocean data; Moored weather buoys often made of steel or aluminum are usually yellow and are anchored to the ocean floor; Drifting buoys often made of plastic or fiberglass may be solid black, solid blue, or bicolor Are usually connected to a sea anchor and collect less data than a Moored buoy; Data collected can be transmitted by radio, cellular, or satellite communications to weather centers and can be used for forecasting or climate studies; Data collected could be wind direction, wind speed, wind gust, wave height, dominant wave period, average wave period, atmospheric pressure, pressure tendency, air temperature, water temperature, dew point, ice accretion, wind chill (combines wind speed, gust and air pressure) Data terms are defined in Answers to Key Questions for Lesson 15; weather buoys are more accurate than ships, which measure from higher level (up to 40 m) compared to a buoy(5 m); weather buoys collect data for a measured size of area around the buoy called a “watch circle radius”

Wind – the movement of a large amount of air

Winter solstice – the day at which the sun is at its lowest altitude in the sky usually December 21 in the Northern Hemisphere (June 21 for the Southern

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Hemisphere); the day the sun is at its southernmost point in the sky for the Northern Hemisphere (northernmost point for the Southern Hemisphere); the day that is called the shortest day/the longest night for the Northern Hemisphere; winter solstice occurs because the axis tilt of the earth does not change, continually pointing to the same point in the sky as the earth revolves around the sun; in the winter solstice for the Northern Hemisphere, the earth is tipped away from the sun