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- mackerel sky.** An area of sky with a formation of rounded and isolated cirrocumulus or altocumulus resembling the pattern of scales on the back of a mackerel.
- macroscopic, *adj.*** Large enough to be seen by the unaided eye.
- madrepore, *n.*** A branching or stag-horn coral, or any perforated stone coral.
- maelstrom, *n.*** A whirlpool similar to the Maelstrom off the west coast of Norway.
- maestro, *n.*** A northwesterly wind with fine weather which blows, especially in summer, in the Adriatic. It is most frequent on the western shore. This wind is also found on the coasts of Corsica and Sardinia.
- magnet, *n.*** A body which produces a magnetic field around itself. It has the property of attracting certain materials capable of being magnetized. A magnet occurring in nature is called a natural magnet in contrast with a man-made artificial magnet. See also HEELING MAGNET, KEEPER.
- magnetic, *adj.*** Of or pertaining to a magnet or related to magnetic north.
- magnetic amplitude.** Amplitude relative to magnetic east or west.
- magnetic annual change.** The amount of secular change in the earth's magnetic field which occurs in 1 year. magnetic annual variation; the small systematic temporal variation in the earth's magnetic field which occurs after the trend for secular change has been removed from the average monthly values.
- magnetic anomaly.** See LOCAL MAGNETIC DISTURBANCE.
- magnetic azimuth.** Azimuth relative to magnetic north.
- magnetic bay.** A small magnetic disturbance whose magnetograph resembles an indentation of a coastline. On earth, magnetic bays occur mainly in the polar regions and have duration of a few hours.
- magnetic bearing.** Bearing relative to magnetic north; compass bearing corrected for deviation.
- magnetic chart.** A chart showing magnetic information. If it shows lines of equality in one or more magnetic elements, it may be called an isomagnetic chart. It is an isoclinal or isoclinic chart if it shows lines of equal magnetic dip, an isodynamic chart if it shows lines of equal magnetic intensity, an isogonic chart if it shows lines of equal magnetic variation, an isogriv chart if it shows lines of equal grid variation, an isoporic chart if it shows lines of equal rate or change of a magnetic element.
- magnetic circle.** A sphere of specified radius about the magnetic compass location to be kept free of any magnetic or electrical equipment which would interfere with the compass.
- magnetic compass.** A compass depending for its directive force upon the attraction of the horizontal component of the earth's magnetic field for a magnetized needle or sensing element free to turn in a horizontal direction.
- magnetic course.** Course relative to magnetic north; compass course corrected for deviation. magnetic daily variation. See MAGNETIC DIURNAL VARIATION.
- magnetic declination.** See VARIATION, definition 1.
- magnetic deviation.** See DEVIATION, definition 1.
- magnetic dip.** Angular distance between the horizontal and the direction of a line of force of the earth's magnetic field at any point. Also called DIP, MAGNETIC INCLINATION.
- magnetic dip pole.** See MAGNETIC POLE, definition 1.
- magnetic direction.** Horizontal direction expressed as angular distance from magnetic north. magnetic diurnal variation. Oscillations of the earth's magnetic field which have a periodicity of about a day and which depend to a close approximation only on local time and geographic latitude. Also called MAGNETIC DAILY VARIATION.
- magnetic element.** 1. Variation, dip, or magnetic intensity. 2. The part of an instrument producing or influenced by magnetism.
- magnetic equator.** The line on the surface of the earth connecting all points at which the magnetic dip is zero. Also called ACLINIC LINE. See also GEOMAGNETIC EQUATOR.
- magnetic field.** Any space or region in which magnetic forces are present, as in the earth's magnetic field, or in or about a magnet, or in or about an electric current. See also MAGNETIC VECTOR.
- magnetic force.** The strength of a magnetic field. Also called MAGNETIC INTENSITY.
- magnetic heading.** Heading relative to magnetic north; compass heading corrected for deviation.
- magnetic inclination.** See MAGNETIC DIP.
- magnetic induction.** The act or process by which material becomes magnetized when placed in a magnetic field.
- magnetic intensity.** The strength of a magnetic field. Also called MAGNETIC FORCE.
- magnetic latitude.** Angular distance north or south of the magnetic equator. The angle is equal to an angle, the tangent of which is equal to half the tangent of the magnetic dip at the point.
- magnetic lines of force.** Closed lines indicating by their direction the direction of magnetic influence.
- magnetic meridian.** A line of horizontal magnetic force of the earth. A compass needle without deviation lies in the magnetic meridian.
- magnetic moment.** The quantity obtained by multiplying the distance between two magnetic poles by the average strength of the poles.
- magnetic needle.** A small, slender, magnetized bar which tends to align itself with magnetic lines of force.
- magnetic north.** The direction indicated by the north seeking pole of a freely suspended magnetic needle, influenced only by the earth's magnetic field.
- magnetic observation.** Measurement of any of the magnetic elements.
- magnetic parallel.** An isoclinal; a line connecting points of equal magnetic dip.
- magnetic pole.** 1. Either of the two places on the surface of the earth where the magnetic dip is 90°, that in the Northern Hemisphere being designated north magnetic pole, and that in the Southern Hemisphere being designated south magnetic pole. Also called MAGNETIC DIP POLE. See also MAGNETIC LATITUDE, GEOMAGNETIC POLE, MAGNETIC LATITUDE. 2. Either of those two points of a magnet where the magnetic force is greatest.
- magnetic prime vertical.** The vertical circle through the magnetic east and west points of the horizon.
- magnetic range.** A range oriented in a given magnetic direction and used to assist in the determination of the deviation of a magnetic compass.
- magnetic retentivity.** The ability to retain magnetism after removal of the magnetizing force.
- magnetic secular change.** The gradual variation in the value of a magnetic element which occurs over a period of years.
- magnetic storm.** A disturbance in the earth's magnetic field, associated with abnormal solar activity, and capable of seriously affecting both radio and wire transmission.
- magnetic temporal variation.** Any change in the earth's magnetic field which is a function of time.
- magnetic track.** The direction of the track relative to magnetic north.
- magnetic variation.** See VARIATION, definition 1.
- magnetic vector.** The component of the electromagnetic field associated with electromagnetic radiation which is of the nature of a magnetic field. The magnetic vector is considered to coexist with, but to act at right angles to, the electric vector.
- magnetism, *n.*** The phenomena associated with magnetic fields and their effects upon magnetic materials, notably iron and steel. The magnetism of the north-seeking end of a freely suspended magnet is called red magnetism; the magnetism of the south-seeking end is called blue magnetism. Magnetism acquired by a piece of magnetic material while it is in a magnetic field is called induced magnetism. Permanent magnetism is retained for long periods without appreciable reduction, unless the magnet is subjected to a demagnetizing force. The magnetism in the intermediate iron of a ship which tends to change as the result of vibration, aging, or cruising in the same direction for a long period but does not alter immediately so as to be properly termed induced magnetism is called sub permanent magnetism. Magnetism which remains after removal of the magnetizing force may be called residual magnetism. The magnetism of the earth is called terrestrial magnetism or geomagnetism.
- magnetize, *v., t.*** To produce magnetic properties. The opposite is DEMAGNETIZE.
- magnetometer, *n.*** An instrument for measuring the intensity and direction of the earth's magnetic field. See also DECLINOMETER.

- magnetron**, *n.* An electron tube characterized by the interaction of electrons with the electric field of circuit element in crossed steady electric and magnetic fields to produce an alternating current power output. It is used to generate high power output in the ultra-high and super-high frequency bands.
- magnification**, *n.* The apparent enlargement of anything.
- magnifying power**. The ratio of the apparent length of a linear dimension as seen through an optical instrument to that seen by the unaided eye. See POWER.
- magnitude**, *n.* 1. Relative brightness of a celestial body. The smaller (algebraically) the number indicating magnitude, the brighter the body. The expression first magnitude is often used somewhat loosely to refer to all bodies of magnitude 1.5 or brighter, including negative magnitudes. 2. Amount; size; greatness.
- magnitude ratio**. The ratio of relative brightness of two celestial bodies differing in magnitude by 1.0. This ratio is 2.512, the 5th root of 100. A body of magnitude 1.0 is 2.512 times as bright as a body of magnitude 2.0, etc.
- main beam**. See under LOBE.
- mainland**, *n.* The principal portion of a large land area. The term is used loosely to contrast a principal land mass from outlying islands and sometimes peninsulas.
- main light**. The principal light of two or more lights situated on the same support or neighboring supports.
- main lobe**. The lobe of the radiation pattern of a directional antenna which contains the direction of maximum radiation.
- major axis**. The longest diameter of an ellipse or ellipsoid. Opposite is MINOR AXIS.
- major datum**. See PREFERRED DATUM.
- major light**. A light of high intensity and reliability exhibited from a fixed structure or on marine site (except range lights). Major lights include primary seacoast lights and secondary lights. See also MINOR LIGHT.
- major planets**. See under PLANET.
- make the land**. To sight and approach or reach land from seaward.
- make way**. To progress through the water.
- making way**. Progressing through the water. See also UNDERWAY.
- Malvin Current**. See FALKLAND CURRENT.
- mamma**, *n.* Hanging protuberances, like pouches on the under surface of a cloud. This supplementary cloud feature occurs mostly with cirrus, cirrocumulus, altocumulus, altostratus, stratocumulus, and cumulonimbus; in the case of cumulonimbus, mamma generally appear on the under side of the anvil.
- mammatus**, *n.* See MAMMA.
- maneuvering board**. A polar coordinate plotting sheet devised to facilitate solution of problems involving relative movement.
- Maneuvering Board Manual**. See PUB. NO. 217.
- man-made noise**. In radio reception, noise due entirely to unwanted transmissions from electrical or electronic apparatus, which has been insufficiently suppressed.
- manned light**. A light which is operated and maintained by full-time resident personnel.
- mantissa**, *n.* The part of a logarithm (base 10) to the right of the decimal point. The part of a logarithm (base 10) to the left of the decimal point is called the CHARACTERISTIC.
- manual**, *adj.* By hand, in contrast with AUTOMATIC.
- manual radio direction finder**. A radio direction finder which requires manual operation of the antenna and determination of the aural null by speaker or headphones.
- map**, *n.* A representation, usually on a plane surface, of all or part of the surface of the earth, celestial sphere, or other area; showing relative size and position, according to a given projection, of the features represented. Such a representation intended primarily for navigational use is called a chart. A planimetric map indicates only the horizontal positions of features; a topographic map both horizontal and vertical positions. The pattern on the underside of extensive cloud areas, created by the varying amounts of light reflected from the earth's surface, is called a sky map. A chart which shows the distribution of meteorological conditions over an area at a given moment may be called a weather map.
- map accuracy standards**. See UNITED STATES NATIONAL MAP ACCURACY STANDARDS.
- map chart**. See COMBAT CHART.
- mapping, charting and geodesy**. The collection, transformation, generation, dissemination, and storing of geodetic, geomagnetic, gravimetric, aeronautical, topographic, hydrographic, cultural, and toponymic data. These data may be used for military planning, training, and operations including aeronautical, nautical, and land navigation, as well as for weapon orientation and target positioning. Mapping, charting and geodesy (MC&G) also includes the evaluation of topographic, hydrographic, or aeronautical features for their effect on military operations or intelligence. The data may be presented in the form of topographic, planimetric, relief, or thematic maps and graphics; nautical and aeronautical charts and publications, and in simulated, photographic, digital, or computerized formats.
- map projection**. A systematic drawing of lines on a plane surface to represent the parallels of latitude and the meridians of longitude of the earth or a section of the earth. A map projection may be established by analytical computation or may be constructed geometrically.
- map symbol**. A character, letter, or similar graphic representation used on a map to indicate some object, characteristic, etc. May be called a CHART SYMBOL when applied to a chart.
- March equinox**. See VERNAL EQUINOX.
- mare's tails**. Long, slender, well-defined streaks of cirrus cloud which resemble horse's tails.
- marigram**, *n.* A graphic record of the rise and fall of the tide. The record is in the form of a curve, in which time is generally represented on the abscissa and the height of the tide on the ordinate.
- marina**, *n.* A harbor facility for small boats, yachts, etc., where supplies, repairs, and various services are available.
- marine**, *adj.* Of or pertaining to the sea. See also NAUTICAL.
- marine chart**. See NAUTICAL CHART.
- marine climate**. The type of climate characteristic of coastal areas, islands, and the oceans, the distinctive features of which are small annual and daily temperature range and high relative humidity in contrast with CONTINENTAL CLIMATE, which is characteristic of the interior of a large landmass, and the distinctive features of which are large annual and daily temperature range and dry air with few clouds.
- marine light**. A luminous or lighted aid to navigation intended primarily for marine navigation. One intended primarily for air navigation is called an AERONAUTICAL LIGHT.
- marine parade**. See MARINE REGATTA.
- marine radiobeacon**. A radiobeacon whose service is intended primarily for the benefit of ships.
- marine railway**. A track, a wheeled cradle, and winching mechanism for hauling vessels out of the water so that the bottom can be exposed.
- marine regatta**. An organized race or other public water event, conducted according to a prearranged schedule, noted in the Local Notice to Mariners. Also called MARINE PARADE.
- marine sanctuary**. An area established under provisions of the Marine Protection, Research, and Sanctuaries Act of 1972, Public Law 92-532 (86 Stat. 1052), for the preservation and restoration of its conservation, recreational, ecological, or esthetic values. Such an area may lie in ocean waters as far seaward as the outer edge of the continental shelf, in coastal waters where the tide ebbs and flows, or in the Great Lakes and connecting waters, and may be classified as a habitat, species, research, recreational and esthetic, or unique area.
- marine sextant**. A sextant designed primarily for marine navigation. On a clamp screw sextant the position of the tangent screw is controlled by a clamp screw; on an endless tangent screw sextant the position of the index arm and the vernier or micrometer drum is controlled by an endless tangent screw. A vernier sextant provides a precise reading by means of a vernier used directly with the arc, and may have either a clamp screw or an endless tangent screw for controlling the position of the tangent screw or the index arm. A micrometer drum sextant provides a precise reading by means of a micrometer drum attached to the index arm, and has an endless tangent screw for controlling the position of the index arm. See also SEXTANT.
- maritime**, *adj.* Bordering on, concerned with, or related to the sea. See also NAUTICAL.
- maritime polar air**. See under AIR-MASS CLASSIFICATION.
- maritime position**. The location of a seaport or other point along a coast.
- Maritime Safety Information (MSI)**. Designation of the IHO/IMO referring to navigational information of immediate importance to mariners, affecting the safety of life and/or property at sea.

- maritime tropical air.** See under AIR-MASS CLASSIFICATION.
- mark, n.** 1. An artificial or natural object of easily recognizable shape or color, or both, situated in such a position that it may be identified on a chart. A fixed artificial navigation mark is often called a BEACON. This may be lighted or unlighted. Also called NAVIGATION MARK; SEAMARK. See also CLEARING MARKS. 2. A major design or redesign of an instrument, denoted by a number. Minor changes are designated MODIFICATIONS. 3. One of the bits of leather, cloth, etc., indicating a specified length of a lead line. 4. An indication intended as a datum or reference, such as a bench mark.
- mark, v., i.** "Now" or "at this moment." A call used when simultaneous observations are being made, to indicate to the second person the moment a reading is to be made, as when the time of a celestial observation is to be noted; or the moment a reading is a prescribed value, as when the heading of a vessel is exactly a desired value.
- marker beacon.** 1. See MARKER RADIOBEACON. 2. As defined by the International Telecommunication Union (ITU), a transmitter in the aeronautical radionavigation service which radiates vertically a distinctive pattern for providing position information to aircraft.
- marker buoy.** A small, brightly painted moored float used to temporarily mark a location on the water while placing a buoy on station.
- marker radiobeacon.** A low powered radiobeacon used primarily to mark a specific location such as the end of a jetty. Usually used primarily for homing bearings. Also called MARKER BEACON.
- marl, n.** A crumbling, earthy deposit, particularly one of clay mixed with sand, lime, decomposed shells, etc. Sometimes a layer of marl becomes quite compact.
- Mars, n.** The navigational planet whose orbit lies between the orbits of the Earth and Jupiter.
- marsh, n.** An area of soft wet land. Flat land periodically flooded by salt water is called a salt marsh. Sometimes called SLOUGH.
- mascaret, n.** See TIDAL BORE.
- mass, n.** The measure of a body's inertia, or the amount of material it contains. This term should not be confused with WEIGHT.
- mass attraction vertical.** The normal to any surface of constant geopotential. On the earth this vertical is a function only of the distribution of mass and is unaffected by forces resulting from the motions of the earth.
- master, n.** Short for MASTER STATION.
- master compass.** The main part of a remote-indicating compass system which determines direction for transmission to various repeaters.
- master gyrocompass.** See under GYROCOMPASS.
- master station.** In a radionavigation system, the station of a chain which provides a reference by which the emissions of other (slave or secondary) stations are controlled.
- masthead light.** A fixed running light placed on the centerline of a vessel showing an unbroken white light over an arc of the horizon from dead ahead to 22.5° abaft the beam on either side of the vessel.
- Matanuska wind.** A strong, gusty, northeast wind which occasionally occurs during the winter in the vicinity of Palmer, Alaska.
- maximum ebb.** See under EBB CURRENT.
- maximum flood.** See under FLOOD CURRENT.
- maximum thermometer.** A thermometer which automatically registers the highest temperature occurring since its last setting. One which registers the lowest temperature is called a MINIMUM THERMOMETER.
- mean, adj.** Occupying a middle position.
- mean, n.** The average of a number of quantities, obtained by adding the values and dividing the sum by the number of quantities involved. Also called AVERAGE, ARITHMETIC MEAN. See also MEDIAN.
- mean anomaly.** See under ANOMALY, definition 2.
- mean diurnal high water inequality.** See under DIURNAL INEQUALITY.
- mean diurnal low water inequality.** See under DIURNAL INEQUALITY.
- mean elements.** Elements of an adopted reference orbit that approximates the actual, perturbed orbit. Mean elements serve as the basis for calculating perturbations. See also ORBITAL ELEMENTS.
- mean higher high water.** A tidal datum that is the average of the highest high water height of each tidal day observed over the National Tidal Datum Epoch. For stations with shorter series, simultaneous observational comparisons are made with a control tide station in order to derive the equivalent of a 19-year datum. See also HIGH WATER.
- mean higher high water line.** The intersection of the land with the water surface at the elevation of mean higher high water.
- mean high tide.** See under MEAN HIGH WATER.
- mean high water.** A tidal datum, the average of all the high water heights observed over the National Tidal Datum Epoch. For stations with shorter series, simultaneous observational comparisons are made with a control tide station in order to derive the equivalent of a 19-year datum. See also HIGH WATER.
- mean high water line.** The intersection of the land with the water surface at the elevation of mean high water. See also SHORELINE.
- mean high water lunital interval.** See under LUNITIDAL INTERVAL. mean high water neaps. See as NEAP HIGH WATER or HIGH WATER NEAPS under NEAP TIDES.
- mean high water springs.** See under SPRING TIDES.
- mean ice edge.** The average position of the ice edge in any given month or period based on observations over a number of years. Other terms which may be used are mean maximum ice edge and mean minimum ice edge. See also ICE LIMIT.
- mean latitude.** Half the arithmetical sum of the latitudes of two places on the same side of the equator. Mean latitude is labeled N or S to indicate whether it is north or south of the equator. The expression is occasionally used with reference to two places on opposite sides of the equator, but this usage is misleading as it lacks the significance usually associated with the expression. When the places are on opposite sides of the equator, two mean latitudes are generally used, the mean of each latitude north and south of the equator. The mean latitude is usually used in middle-latitude sailing for want of a practicable means of determining the middle latitude. See also MIDDLE LATITUDE, MIDDLE-LATITUDE SAILING.
- mean lower low water.** A tidal datum that is the average of the lowest low water height of each tidal day observed over the National Tidal Datum Epoch. For station with shorter series, simultaneous observational comparisons are made with a control tide station in order to derive the equivalent of a 19-year datum. See also LOW WATER.
- mean lower low water line.** The intersection of the land with the water surface at the elevation of mean lower low water.
- mean low water.** A tidal datum that is the average of all the low water heights observed over the National Tidal Datum Epoch. For stations with shorter series, simultaneous observational comparisons are made with a control tide station in order to derive the equivalent of a 19-year datum. See also LOW WATER.
- mean low water line.** The intersection of the land with the water surface at the elevation of mean low water.
- mean low water lunital interval.** See under LUNITIDAL INTERVAL.
- mean low water neaps.** See as NEAP LOW WATER or LOW WATER NEAPS under NEAP TIDES.
- mean low water springs.** 1. A tidal datum that is the arithmetic mean of the low waters occurring at the time of the spring tides observed over a specific 19-year Metonic cycle (the National Tidal Datum Epoch). It is usually derived by taking an elevation depressed below the half tide level by an amount equal to one-half the spring range of tide, necessary corrections being applied to reduce the result to a mean value. This datum is used, to a considerable extent, for hydrographic work outside of the United States and is the level of reference for the Pacific approaches to the Panama Canal. Often shortened to SPRING LOW WATER. See also DATUM. 2. See under SPRING TIDES.
- mean motion.** In undisturbed elliptical motion, the constant angular speed required for a body of a specified mass to complete one revolution in an orbit of a specified semimajor axis.
- mean noon.** Twelve o'clock mean time, or the instant the mean sun is over the upper branch of the meridian. Mean noon may be either local or Greenwich depending upon the reference meridian. Zone, standard, daylight saving or summer noon are also forms of mean noon, the mean sun being over the upper branch of the zone, standard, daylight saving or summer reference meridian, respectively.
- mean power.** See under POWER (OF A RADIO TRANSMITTER).
- mean range.** The average difference in the extreme values of a variable quantity, as the mean range of tide.
- mean range of tide.** The difference in height between mean high water and mean low water.
- mean rise interval.** The average interval between the meridian transit of the moon and the middle of the period of the rise of the tide. It may be computed by adding the half of the duration of rise to the mean

low water interval, rejecting the semidiurnal tidal period of 12.42 hours when greater than this amount. The mean rise interval may be either local or Greenwich according to whether it is referred to the local or Greenwich meridian.

mean rise of tide. The height of mean high water above the reference or chart sounding datum.

mean river level. A tidal datum that is the average height of the surface of a tidal river at any point for all stages of the tide observed over a 19-year Metonic cycle (the National Tidal Datum Epoch) usually determined from hourly height readings. In rivers subject to occasional freshets, the river level may undergo wide variations, and for practical purposes certain months of the year may be excluded in the determination of tidal datums. For charting purposes, tidal datums for rivers are usually based on observations during selected periods when the river is at or near low water state. See also DATUM.

mean sea level. A tidal datum that is the arithmetic mean of hourly water elevations observed over a specific 19-year Metonic cycle (the National Tidal Datum Epoch). Shorter series are specified in the name, e.g., monthly mean sea level and yearly mean sea level. See also DATUM; EPOCH, definition 2.

mean sidereal time. See under SIDEREAL TIME.

mean solar day. The duration of one rotation of the earth on its axis, with respect to the mean sun. The length of the mean solar day is 24 hours of mean solar time or $24^{\text{h}} 03^{\text{m}} 56.555^{\text{s}}$ of mean sidereal time. See also CALENDAR DAY.

mean solar time. See MEAN TIME, the term usually used.

mean sun. A fictitious sun conceived to move eastward along the celestial equator at a rate that provides a uniform measure of time equal to the average apparent time. It is used as a reference for reckoning mean time, zone time, etc. Also called ASTRONOMICAL MEAN SUN. See also DYNAMICAL MEAN SUN.

mean tide level. See HALF-TIDE LEVEL.

mean time. Time based upon the rotation of the earth relative to the mean sun. Mean time may be designated as local or Greenwich as the local or Greenwich meridian is the reference. Greenwich mean time is also called UNIVERSAL TIME. Zone, standard, daylight saving or summer time are also variations of mean time, specified meridians being used as the reference. See also EQUATION OF TIME, MEAN SIDEREAL TIME.

mean tropic range. The mean between the great tropic tidal range and the small tropic range. The small tropic range and the mean tropic range are applicable only when the type of tide is semidiurnal or mixed. See also GREAT TROPIC RANGE.

mean water level. The mean surface elevation as determined by averaging the heights of the water at equal intervals of time, usually hourly.

mean water level line. The line formed by the intersection of the land with the water surface at an elevation of mean water level.

measured mile. A length of 1 nautical mile, the limits of which have been accurately measured and are indicated by ranges ashore. It is used by vessels to calibrate logs, engine revolution counters, etc., and to determine speed.

measured-mile buoy. A buoy marking the end of a measured mile.

mechanical scanning. Scanning effected by moving all or part of the antenna.

median, *n.* A value in a group of quantities below and above which fall an equal number of quantities. Of the group 60, 75, 80, 95, and 100, the median is 80. If there is no middle quantity in the group, the median is the value interpolated between the two middle quantities. The median of the group 6, 10, 20, and 31 is 15. See also MEAN.

median valley. The axial depression of the midoceanic ridge system.

medium. A method of electronic data storage and physical transfer, commonly relying on the properties of electromagnetic coatings on tape, disks, or other surfaces, or on the effects of laser light on light-sensitive surfaces.

medium first-year ice. First-year ice 70 to 120 centimeters thick.

medium floe. See under FLOE.

medium fracture. See under FRACTURE.

medium frequency. Radio frequency of 300 to 3,000 kilohertz.

medium iceberg. For reports to the International Ice Patrol, an iceberg that extends 51 to 150 feet (16 to 45 meters) above the sea surface and which has a length of 201 to 400 feet (61 to 122 meters). See also SMALL ICEBERG, LARGE ICEBERG.

medium ice field. See under ICE FIELD.

medium range systems. Those radionavigation systems providing positioning capability beyond the range of short range systems, but their use is generally limited to ranges permitting reliable positioning for about 1 day prior to making landfall; Decca is an example.

mega-. A prefix meaning one million (10^6).

megabyte. One million bytes of information in a computer.

megacycle, *n.* One million cycles; one thousand kilocycles. The term is often used as the equivalent of one million cycles per second.

megahertz, *n.* One million hertz or one million cycles per second.

megaripple, *n.* See SAND WAVE.

meniscus, *n.* 1. The curved upper surface of a liquid in a tube. 2. A type of lens.

mensuration, *n.* 1. The act, process, or art of measuring. 2. That branch of mathematics dealing with determination of length, area, or volume.

Mentor Current. Originating mainly from the easternmost extension of the South Pacific Current at about latitude 40°S , longitude 90°W , the Mentor Current flows first northward and then northwestward. It has the characteristic features of a WIND DRIFT in that it is a broad, slow-moving flow that extends about 900 miles westward from the Peru Current to about longitude 90°W at its widest section and tends to be easily influenced by winds. It joins the westward flowing Pacific South Equatorial Current and forms the eastern part of the general counterclockwise oceanic circulation of the South Pacific Ocean. The speed in the central part of the current at about latitude 26°S , longitude 80°W , may at times reach about 0.9 knot. Also called PERU OCEANIC CURRENT.

Mercator bearing. See RHUMB BEARING.

Mercator chart. A chart on the Mercator projection. This is the chart commonly used for marine navigation. Also called EQUATORIAL CYLINDRICAL ORTHOMORPHIC CHART.

Mercator course. See RHUMB-LINE COURSE.

Mercator direction. Horizontal direction of a rhumb line, expressed as angular distance from a reference direction. Also called RHUMB DIRECTION.

Mercator map projection. A conformal cylindrical map projection in which the surface of a sphere or spheroid, such as the earth, is developed on a cylinder tangent along the equator. Meridians appear as equally spaced vertical lines and parallels as horizontal lines drawn farther apart as the latitude increases, such that the correct relationship between latitude and longitude scales at any point is maintained. The expansion at any point is equal to the secant of the latitude of that point, with a small correction for the ellipticity of the earth. The Mercator is not a perspective projection. Since rhumb lines appear as straight lines and directions can be measured directly, this projection is widely used in navigation. If the cylinder is tangent along a meridian, a transverse Mercator map projection results; if the cylinder is tangent along an oblique great circle, an oblique Mercator map projection results. Also called EQUATORIAL CYLINDRICAL ORTHOMORPHIC MAP PROJECTION.

Mercator sailing. A method of solving the various problems involving course, distance, difference of latitude, difference of longitude, and departure by considering them in the relation in which they are plotted on a Mercator chart. It is similar to plane sailing, but uses meridional difference and difference of longitude in place of difference of latitude and departure, respectively.

mercurial barometer. An instrument which determines atmospheric pressure by measuring the height of a column of mercury which the atmosphere will support. See also ANEROID BAROMETER.

mercury ballistic. A system of reservoirs and connecting tubes containing mercury used with a type of non-pendulous gyrocompass. The action of gravity on this system provides the torques and resultant precessions required to convert the gyroscope into a compass.

meridian, *n.* A north-south reference line, particularly a great circle through the geographical poles of the earth. The term usually refers to the upper branch, the half, from pole to pole, which passes through a given place; the other half being called the lower branch. An astronomical (terrestrial) meridian is a line connecting points having the same astronomical longitude. A geodetic meridian is a line connecting points of equal geodetic longitude. Geodetic and sometime astronomical meridians are also called geographic meridians. Geodetic meridians are shown on charts. The prime meridian passes through longitude 0° . Sometimes designated TRUE MERIDIAN to distinguish it from magnetic meridian, compass meridian, or grid meridian, the north-south lines relative to magnetic, compass, or grid direction, respectively. A fictitious meridian is one

- of a series of great circles or lines used in place of a meridian for certain purposes. A transverse or inverse meridian is a great circle perpendicular to a transverse equator. An oblique meridian is a great circle perpendicular to an oblique equator. Any meridian used as a reference for reckoning time is called a time meridian. The meridian used for reckoning standard zone, daylight saving, or war time is called standard, zone, daylight saving, or war meridian respectively. The meridian through any particular place or observer, serving as the reference for local time, is called local meridian, in contrast with the Greenwich meridian, the reference for Greenwich time. A celestial meridian is a great circle of the celestial sphere, through the celestial poles and the zenith. Also called CIRCLE OF LATITUDE. See also ANTE MERIDIAN, POST MERIDIAN.
- meridian altitude.** The altitude of a celestial body when it is on the celestial meridian of the observer, bearing 000° or 180° true.
- meridian angle.** Angular distance east or west of the local celestial meridian; the arc of the celestial equator, or the angle at the celestial pole, between the upper branch of the local celestial meridian and the hour circle of a celestial body measured eastward or westward from the local celestial meridian through 180°, and labeled E or W to indicate the direction of measurement. See also HOUR ANGLE.
- meridian angle difference.** The difference between two meridian angles, particularly between the meridian angle of a celestial body and the value used as an argument for entering a table. Also called HOUR ANGLE DIFFERENCE.
- meridian observation.** Measurement of the altitude of a celestial body on the celestial meridian of the observer, or the altitude so measured.
- meridian passage.** See MERIDIAN TRANSIT.
- meridian sailing.** Following a true course of 000° or 180°, sailing along a meridian. Under these conditions the dead reckoning latitude is assumed to change 1 minute for each mile run and the dead reckoning longitude remains unchanged.
- meridian transit.** The passage of a celestial body across a celestial meridian. Upper transit, the crossing of the upper branch of the celestial meridian, is understood unless lower transit, the crossing of the lower branch, is specified. Also called TRANSIT, MERIDIAN PASSAGE, CULMINATION.
- meridional difference.** The difference between the meridional parts of any two given parallels. This difference is found by subtraction if the two parallels are on the same side of the equator and by addition if on opposite sides. Also called DIFFERENCE OF MERIDIONAL PARTS.
- meridional parts.** The length of the arc of a meridian between the equator and a given parallel on a Mercator chart, expressed in units of 1 minute of longitude at the equator.
- metacenter, n.** For small angles of inclination of a ship, the instantaneous center of a very small increment of the curved path of the center of buoyancy locus. Or, for small angles of inclination, the point of intersection of the lines of action of the buoyant force and the original vertical through the center of buoyancy.
- meteor, n.** The phenomenon occurring when a solid particle from space enters the earth's atmosphere and is heated to incandescence by friction of the air. A meteor whose brightness does not exceed that of Venus (magnitude -4) is popularly called SHOOTING STAR or FALLING STAR. A shooting star results from the entrance into the atmosphere of a particle having a diameter between a few centimeters and just visible to the naked eye. Shooting stars are observed first as a light source, similar to a star, which suddenly appears in the sky and moves along a long or short path to a point where it just as suddenly disappears. The brighter shooting stars may leave a trail which remains luminous for a short time. Meteors brighter than magnitude -4 are called BOLIDES or FIREBALLS. Light bursts, spark showers, or splitting of the trail are sometimes seen along their luminous trails which persist for minutes and for an hour in exceptional cases. The intensity of any meteor is dependent upon the size of the particle which enters the atmosphere. A particle 10 centimeters in diameter can produce a bolide as bright as the full moon. See also METEORITE.
- meteorite, n.** 1. The solid particle which causes the phenomenon known as a METEOR. 2. The remnant of the solid particle, causing the meteor, which reaches the earth.
- meteorological optical range.** The length of path in the atmosphere required to reduce the luminous flux in a collimated beam from an incandescent lamp at a color temperature of 2,700°K to 0.05 of its original value, the luminous flux being evaluated by means of the curve of spectral luminous efficiencies for photopic vision given by the International Commission on Illumination. The quantity so defined corresponds approximately to the distance in the atmosphere required to reduce the contrast of an object against its background to 5 percent of the value it would have at zero distance, for daytime observation. See also METEOROLOGICAL VISIBILITY.
- Meteorological Optical Range Table.** A table from the International Visibility Code which gives the code number of meteorological visibility and the meteorological visibility for several weather conditions.
- meteorological tide.** A change in water level caused by local meteorological conditions, in contrast to an ASTRONOMICAL TIDE, caused by the attractions of the sun and moon. See also SEICHE, STORM SURGE.
- meteorological tides.** Tidal constituents having origin in the daily or seasonal variations in weather conditions which may occur with some degree of periodicity. See also STORM SURGE.
- meteorological visibility.** The greatest distance at which a black object of suitable dimensions can be seen and recognized by day against the horizon sky, or, in the case of night observations, could be seen and recognized if the general illumination were raised to the normal daylight level. It has been established that the object may be seen and recognized if the contrast threshold is 0.05 or higher. The term may express the visibility in a single direction or the prevailing visibility in all directions. See also VISIBILITY, METEOROLOGICAL OPTICAL RANGE, CONTRAST THRESHOLD.
- meteor swarm.** The scattered remains of comets that have broken up.
- meter, n.** 1. The base unit of length in the International System of Units, equal to 1,650,763.73 wavelengths in vacuum of the radiation corresponding to the transition between the levels 2p₁₀ and 5p₅ of the krypton-86 atom. It is equal to 39.37008 inches, approximately, or approximately one ten-millionth of the distance from the equator to the North or South Pole. The old international prototype of the meter is still kept at the International Bureau of Weights and Measures under the conditions specified in 1889. 2. A device for measuring, and usually indicating, some quantity.
- method of bisectors.** As applied to celestial lines of position, the movement of each of three or four intersecting lines of position an equal amount, in the same direction toward or away from the celestial bodies, so as to bring them as nearly as possible to a common intersection. When there are more than four lines of position, the lines of position in the same general direction are combined to reduce the data to not more than four lines of position. See also OUTSIDE FIX.
- Metonic cycle.** A period of 19 years or 235 lunations, devised by Meton, an Athenian astronomer who lived in the fifth century B.C., for the purpose of obtaining a period in which new and full moon would recur on the same day of the year. Taking the Julian year of 365.25 days and the synodic month as 29.53058 days, we have the 19-year period of 6939.75 days as compared with the 235 lunations of 6939.69 days, a difference of only 0.06 days. See also CALLIPPIC CYCLE.
- meter per second.** The derived unit of speed in the International System of Units.
- meter per second squared.** The derived unit of acceleration in the International System of Units.
- metric system.** A decimal system of weights and measures based on the meter as the unit of length and the kilogram as a unit mass. See also INTERNATIONAL SYSTEM OF UNITS.
- Mexico Current.** From late October through April an extension of the California Current, known as the Mexico Current, flows southeastward along the coast to the vicinity of longitude 95°W where it usually turns west, but at times extends southward as far as Honduras with speeds from 0.5 to 1 knot. During the remainder of the year, this current flows northwestward along the Mexican coast as far as Cabo Corrientes, where it turns westward and becomes a part of the Pacific North Equatorial Current.
- micro-** A prefix meaning one-millionth (10⁻⁶).
- micrometer, n.** An auxiliary device to provide measurement of very small angles or dimensions by an instrument such as a telescope.
- micrometer drum.** A cylinder carrying an auxiliary scale and sometimes a vernier, for precise measurement, as in certain type sextants.
- micrometer drum sextant.** A marine sextant providing a precise reading by means of a micrometer drum attached to the index arm, and having an endless tangent screw for controlling the position of the in-

- dex arm. The micrometer drum may include a vernier to enable a more precise reading. On a vernier sextant the vernier is directly on the arc.
- micron**, *n.* A unit of length equal to one-millionth of a meter.
- microprocessor**. An integrated circuit in a computer which executes machine-language instructions.
- microsecond**, *n.* One-millionth of a second.
- microwave**, *n.* A very short electromagnetic wave, usually considered to be about 30 centimeters to 1 millimeter in length. While the limits are not clearly defined, it is generally considered as the wavelength of radar operation.
- microwave frequency**. Radio frequency of 1,000 to 300,000 megahertz, having wavelengths of 30 centimeters to 1 millimeter.
- mid-channel buoy**. See FAIRWAY BUOY.
- mid-channel mark**. A navigation mark serving to indicate the middle of a channel, which can be passed on either side safely.
- middle clouds**. Types of clouds the mean level of which is between 6,500 and 20,000 feet. The principal clouds in this group are altocumulus and altostratus.
- middle ground**. A shoal in a fairway having a channel on either side.
- middle ground buoy**. One of the buoys placed at each end of a middle ground. See BIFURCATION BUOY, JUNCTION BUOY.
- middle latitude**. The latitude at which the arc length of the parallel separating the meridians passing through two specific points is exactly equal to the departure in proceeding from one point to the other by middle-latitude sailing. Also called MID-LATITUDE. See also MEAN LATITUDE, MIDDLE-LATITUDE SAILING.
- middle-latitude sailing**. A method that combines plane sailing and parallel sailing. Plane sailing is used to find difference of latitude and departure when course and distance are known, or vice versa. Parallel sailing is used to inter-convert departure and difference of longitude. The mean latitude is normally used for want of a practicable means of determining the middle latitude, the latitude at which the arc length of the parallel separating the meridians passing through two specific points is exactly equal to the departure in proceeding from one point to the other. See also MEAN LATITUDE.
- mid-extreme tide**. An elevation midway between the extreme high water and the extreme low water occurring in any locality. See also HALFTIDE LEVEL.
- mid-latitude**. See MIDDLE LATITUDE.
- midnight**, *n.* Twelve hours from noon, or the instant the time reference crosses the lower branch of the reference celestial meridian.
- midnight sun**. The sun when it is visible at midnight. This occurs during the summer in high latitudes, poleward of the circle at which the latitude is approximately equal to the polar distance of the sun.
- mill**, *n.* 1. A unit of angular measurement equal to an angle having a tangent of 0.001. 2. A unit of angular measurement equal to an angle subtended by an arc equal to 1/6,400th part of the circumference of a circle.
- mile**, *n.* A unit of distance. The nautical mile, or sea mile, is used primarily in navigation. Nearly all maritime nations have adopted the International Nautical Mile of 1,852 meters proposed in 1929 by the International Hydrographic Bureau. The U.S. Departments of Defense and Commerce adopted this value on July 1, 1954. Using the yard-meter conversion factor effective July 1, 1959, (1 yard = 0.9144 meter, exactly) the International Nautical Mile is equivalent to 6076.11549 feet, approximately. The geographical mile is the length of 1 minute of arc of the equator considered to be 6,087.08 feet. The U.S. Survey mile or land mile (5,280 feet in the United States) is commonly used for navigation on rivers and lakes, notably the Great Lakes of North America. See also CABLE, MEASURED MILE.
- mileage number**. A number assigned to aids to navigation which gives the distance in sailing miles along the river from a reference point to the aid. The number is used principally in the Mississippi and other river systems.
- miles of relative movement**. The distance, in miles, traveled relative to a reference point which is usually in motion.
- military grid**. Two sets of parallel lines intersecting at right angles and forming squares; the grid is superimposed on maps, charts, and other similar representations of the earth's surface in an accurate and consistent manner to permit identification of ground locations with respect to other locations and the computation of direction and distance to other points. See also MILITARY GRID REFERENCE SYSTEM, UNIVERSAL POLAR STEREOGRAPHIC GRID, UNIVERSAL TRANSVERSE MERCATOR GRID, WORLD GEOGRAPHIC REFERENCE SYSTEM.
- military grid reference system**. A system which uses a standard-scaled grid square, based on a point of origin on a map projection of the earth's surface in an accurate and consistent manner to permit either position referencing or the computation of direction and distance between grid positions. See also MILITARY GRID.
- Milky Way**. The galaxy of which the sun and its family of planets are a part. It appears as an irregular band of misty light across the sky. Through a telescope, it is seen to be composed of numerous individual stars. See also COALSACK.
- milli-**. A prefix meaning one-thousandth.
- millibar**, *n.* A unit of pressure equal to 1,000 dynes per square centimeter, or 1/1,000th of a bar. The millibar is used as a unit of measure of atmospheric pressure, a standard atmosphere being equal to 1,013.25 millibars or 29.92 inches of mercury.
- milligal**, *n.* A unit of acceleration equal to 1/1,000th of a gal, or 1/1,000 centimeter per second per second. This unit is used in gravity measurements, being approximately one-millionth of the average gravity at the earth's surface.
- millimeter**, *n.* One thousandth of a meter— one tenth of a centimeter; 0.3937008 inch.
- millisecond**, *n.* One-thousandth of a second.
- minaret**, *n.* A tall, slender tower attached to a mosque and surrounded by one or more projecting balconies; frequently charted as landmarks.
- minimal depiction of detail**. A term used to indicate the extreme case of generalization of detail on a chart. In the extreme case most features are omitted even though there is space to show at least some of them. The practice is most frequently used for semi-enclosed areas such as estuaries and harbors on smaller-scale charts, where use of a larger scale chart is essential.
- minimum distance** (of a navigational system). The minimum distance at which a navigational system will function within its prescribed tolerances.
- minimum ebb**. See under EBB CURRENT.
- minimum flood**. See under FLOOD CURRENT.
- minimum signal**. The smallest signal capable of satisfactorily operating an equipment, e.g., the smallest signal capable of triggering a racon.
- minimum thermometer**. A thermometer which automatically registers the lowest temperature occurring since its last setting. One which registers the highest temperature is called a MAXIMUM THERMOMETER.
- minor axis**. The shortest diameter of an ellipse or ellipsoid.
- minor light**. An automatic unmanned light on a fixed structure usually showing low to moderate intensity. Minor lights are established in harbors, along channels, along rivers, and in isolated locations. See also MAJOR LIGHT.
- minor planets**. See under PLANET.
- minute**, *n.* 1. The sixtieth part of a degree of arc. 2. The sixtieth part of an hour.
- mirage**, *n.* An optical phenomenon in which objects appear distorted, displaced (raised or lowered), magnified, multiplied, or inverted due to varying atmospheric refraction when a layer of air near the earth's surface differs greatly in density from surrounding air. See also TOWERING, STOOPING, LOOMING, SINKING, FATA MORGANA.
- mirror reflection**. See SPECULAR REFLECTION.
- missing**, *adj.* Said of a floating aid to navigation which is not on station with its whereabouts unknown.
- mist**, *n.* An aggregate of very small water droplets suspended in the atmosphere. It produces a thin, grayish veil over the landscape. It reduces visibility to a lesser extent than fog. The relative humidity with mist is often less than 95 percent. Mist is intermediate in all respects between haze (particularly damp haze) and fog. See also DRIZZLE.
- mistake**, *n.* The result of carelessness or of a mistake. For the purpose of error analysis, a mistake is not classified as an error. Also called BLUNDER.
- mistral**, *n.* A cold, dry wind blowing from the north over the northwest coast of the Mediterranean Sea, particularly over the Gulf of Lions. Also called CIERZO. See also FALL WIND.
- mixed current**. Type of tidal current characterized by a conspicuous speed difference between the two floods and/or ebbs usually occurring each tidal day. See also TYPE OF TIDE.

- mixed tide.** Type of tide with a large inequality in either the high and/or low water heights, with two high waters and two low waters usually occurring each tidal day. All tides are mixed, but the name is usually applied to the tides intermediate to those predominantly semidiurnal and those predominantly diurnal. See also TYPE OF TIDE.
- moat.** *n.* An annular depression that may not be continuous, located at the base of many sea mounts, islands, and other isolated elevations of the sea floor, analogous to the moat around a castle.
- mobile service.** As defined by the International Telecommunication Union (ITU), a service of radiocommunication between mobile and land stations, or between mobile stations.
- mobile offshore drilling unit (MODU).** A movable drilling platform used in offshore oil exploration and production. It is kept stationary by vertically movable legs or by mooring with several anchors. After drilling for oil it may be replaced by a production platform or a submerged structure.
- mock fog.** A rare simulation of true fog by anomalous atmospheric refraction.
- mock moon.** See PARASALENE.
- mock sun.** See PARHELION.
- mock-sun ring.** See PARHELIC CIRCLE.
- modal interference.** Omega signals propagate in the earth-ionosphere wave guide. This waveguide can support many different electromagnetic field configurations, each of which can be regarded as an identifiable signal component or mode having the same signal frequency, but with slightly different phase velocity. Modal interference is a special form of signal interference wherein two or more waveguide modes interfere with each other and irregularities appear in the phase pattern. This type of interference occurs predominantly under nighttime conditions when most of the propagation path is not illuminated and the boundary conditions of the waveguide are unstable. It is most severe for signals originating at stations located close to the geomagnetic equator. During all daylight path conditions, the only region of modal interference is a more-less circular area of radius 500-1000 kilometers immediately surrounding a transmitting station.
- model atmosphere.** Any theoretical representation of the atmosphere, particularly of vertical temperature distribution. See also STANDARD ATMOSPHERE.
- modem.** An electronic device which converts digital information to analog signals and vice-versa, used in computer file transfer over telephone lines.
- moderate breeze.** Wind of force 4 (11 to 16 knots or 13 to 18 miles per hour) on the Beaufort wind scale.
- moderate gale.** A term once used by seamen for what is now called NEAR GALE on the Beaufort wind scale.
- modification.** *n.* An instrument design resulting from a minor change, and indicated by number. A design resulting from a major change is called a MARK.
- modified Julian day.** An abbreviated form of the Julian day which requires fewer digits and translates the beginning of each day from Greenwich noon to Greenwich midnight; obtained by subtracting 2400000.5 from Julian days.
- modified Lambert conformal chart.** A chart on the modified Lambert conformal map projection. Also called NEY'S CHART.
- modified Lambert conformal map projection.** A modification of the Lambert conformal projection for use in polar regions, one of the standard parallels being at latitude 89°59'58" and the other at latitude 71° or 74°, and the parallels being expanded slightly to form complete concentric circles. Also called NEY'S MAP PROJECTION.
- modified refractive index.** For a given height above sea level, the sum of the refractive index of the air at this height and the ratio of the height to the radius of the earth.
- modulated wave.** A wave which varies in some characteristic in accordance with the variations of a modulating wave. See also CONTINUOUS WAVE.
- modulating wave.** A wave which modulates a carrier wave.
- modulation.** *n.* A variation of some characteristic of a radio wave, called the CARRIER WAVE in accordance with instantaneous values of another wave called the MODULATING WAVE. These variations can be amplitude, frequency, phase, or pulse.
- modulator.** *n.* The component in pulse radar which generates a succession of short pulses of energy which in turn cause a transmitter tube to oscillate during each pulse.
- mole.** *n.* 1. A structure, usually massive, on the seaward side of a harbor for its protection against current and wave action, drift ice, wind, etc. Sometimes it may be suitable for the berthing of ships. See also JETTY, definition 1; QUAY. 2. The base unit of amount of substance in the International System of Units; it is the amount of substance of a system which contains as many elementary entities as there are atoms in 0.012 kilogram of carbon atom 12. When the mole is used, the elementary entities must be specified and may be atoms, molecules, ions, electrons, other particles, or specified groups of such particles.
- moment.** *n.* The tendency or degree of tendency to produce motion about an axis. Numerically it is the quantity obtained by multiplying the force, speed, or mass by the distance from the point of application or center of gravity to the axis. See also MAGNETIC MOMENT.
- moment of inertia.** The quantity obtained by multiplying the mass of each small part of a body by the square of its distance from an axis, and adding all the results.
- momentum.** *n.* The quantity of motion. Linear momentum is the quantity obtained by multiplying the mass of a body by its linear speed. Angular momentum is the quantity obtained by multiplying the moment of inertia of a body by its angular speed.
- monitor.** *v. t.* In radionavigation, to receive the signals of a system in order to check its operation and performance.
- monitor.** *n.* The video display portion of a computer system.
- monitoring.** *n.* In radionavigation, the checking of the operation and performance of a system through reception of its signals.
- monsoon.** *n.* A name for seasonal winds first applied to the winds over the Arabian Sea, which blow for 6 months from the northeast (northeast monsoon) and for 6 months from the southwest (southwest monsoon). The primary cause is the much greater annual variation of temperature over large land areas compared with the neighboring ocean surfaces, causing an excess of pressure over the continents in winter and a deficit in summer, but other factors such as the relief features of the land have a considerable effect. In India the term is popularly applied chiefly to the southwest monsoon and by extension, to the rain which it brings.
- monsoon current.** A seasonal wind-driven current occurring in the northern part of the Indian Ocean and the northwest Pacific Ocean. See also MONSOON DRIFT.
- Monsoon Drift.** A drift current of the northeast Indian Ocean located north of the Indian Equatorial Countercurrent and south of the Bay of Bengal. During February and March when the northeast monsoon decreases in intensity, the monsoon drift is formed from the outflow of the Strait of Malacca and a small amount of northward flow along the upper southwest coast of Sumatra. Off the southwest coast of Sumatra, a current generally sets southeast during all months. It is strongest during October through April. The monsoon drift broadens as it flows westward and divides off the east coast of Sri Lanka, part joining the circulation of the Bay of Bengal and part joining the flow from the Arabian Sea. During April, the transition period between monsoons, the monsoon drift is ill-defined. A counterclockwise circulation exists between Sumatra and Sri Lanka. During May through October, the monsoon drift flows east to southeast. During November and December part of the monsoon drift is deflected into the Bay of Bengal and the remainder turns clockwise and flows southeastward. See also MONSOON.
- monsoon fog.** An advection fog occurring as a monsoon circulation transports warm moist air over a colder surface.
- month.** *n.* 1. The period of the revolution of the moon around the earth. The month is designated as sidereal, tropical, anomalistic, nodical or synodical, according to whether the revolution is relative to the stars, the vernal equinox, the perigee, the ascending node, or the sun. 2. The calendar month, which is a rough approximation to the synodical month.
- month of the phases.** See SYNODICAL MONTH.
- moon.** *n.* The astronomical satellite of the earth.
- moonbow.** *n.* A rainbow formed by light from the moon. Colors in a moonbow are usually very difficult to detect. Also called LUNAR RAINBOW.
- moon dog.** See PARASELENE.
- moonrise.** *n.* The crossing of the visible horizon by the upper limb of the ascending moon.
- moonset.** *n.* The crossing of the visible horizon by the upper limb of the descending moon.

- moor**, *v., t.* To secure a vessel to land by tying to a pier, wharf or other land-based structure, or to anchor with two or more anchors.
- mooring**, *n.* 1. The act of securing a craft to the ground, a wharf, pier, quay, etc., other than anchoring with a single anchor. 2. The place where a craft may be moored. 3. Chains, bridles, anchors, etc. used in securing a craft to the ground.
- mooring buoy**. A buoy secured to the bottom by permanent moorings and provided with means for mooring a vessel by use of its anchor chain or mooring lines.
- morning star**. The brightest planet appearing in the eastern sky during morning twilight.
- morning twilight**. The period of time between darkness and sunrise.
- Morse code light**. A navigation light which flashes one or more characters in Morse code.
- motion**, *n.* The act, process, or instance of change of position. Absolute motion is motion relative to a fixed point. Actual motion is motion of an object relative to the earth. Apparent or relative motion is change of position as observed from a reference point which may itself be in motion. Diurnal motion is the apparent daily motion of a celestial body. Direct motion is the apparent motion of a planet eastward among the stars; retrograde motion, the apparent motion westward among the stars. Motion of a celestial body through space is called space motion, which is composed of two components: proper motion, that component perpendicular to the line of sight; and radial motion, that component in the direction of the line of sight. Also called MOVEMENT, especially when used in connection with problems involving the motion of one vessel relative to another.
- mound**, *n.* On the sea floor, a low, isolated, rounded hill.
- mountain breeze**. A breeze that blows down a mountain slope due to the gravitational flow of cooled air. See also KATABATIC WIND, VALLEY BREEZE.
- mountains**, *n., pl.* On the sea floor, a well delineated subdivision of a large and complex positive feature, generally part of a cordillera.
- movement**, *n.* See MOTION.
- moving havens**. Moving restricted areas established to prevent mutual interference of Naval vessels in transit.
- moving target indication**. A radar presentation in which stationary targets are wholly or partially suppressed.
- Mozambique Current**. The part of the Indian South Equatorial Current that turns and flows along the African coast in the Mozambique Channel. It is considered part of the AGULHAS CURRENT.
- mud**, *n.* A general term applied to mixtures of sediments in water. Where the grains are less than 0.002 millimeter in diameter, the mixture is called clay. Where the grains are between 0.002 and 0.0625 millimeter in diameter, the mixture is called silt. See also SAND; STONES; ROCK, definition 2.
- mud berth**. A berth where a vessel rests on the bottom at low water.
- mud flat**. A tidal flat composed of mud.
- mud pilot**. A person who pilots a vessel by visually observing changes in the color of the water as the depth of the water increases or decreases.
- multihop transmission**. See MULTIPLE-HOP TRANSMISSION.
- multipath error**. Interference between radio waves which have traveled between the transmitter and the receiver by two paths of different lengths, which may cause fading or phase changes at the receiving point due to the vector addition of the signals, making it difficult to obtain accurate information.
- multipath propagation**. Radio propagation from the transmitter to the receiver by two or more paths simultaneously. Also called MULTIPATH TRANSMISSION.
- multipath transmission**. See MULTIPATH PROPAGATION.
- multiple echoes**. Radar echoes which may occur when a strong echo is received from another ship at close range. A second or third or more echoes may be observed on the radarscope at double triple, or other multiples of the actual range of the radar target, resulting from the echo's being reflected by own ship back to the target and received once again as an echo at a multiple of the preceding range to the target. This term should not be confused with MULTIPLE-TRACE ECHO. See also SECOND-TRACE ECHO.
- multiple-hop transmission**. Radio wave transmission in which the waves traveling between transmitter and receiver undergo multiple reflections and refractions between the earth and ionosphere. Also called MULTIHOP TRANSMISSION.
- multiple ranges**. A group of two ranges, having one of the range marks (either front or rear) in common.
- multiple star**. A group of three or more stars so close together that they appear as a single star, whether through physical closeness or as a result of lying in approximately the same direction. See also STAR CLUSTER.
- multiple tide staff**. A succession of tide staffs on a sloping shore so placed that the vertical graduations on the several staffs will form a continuous scale referred to the same datum.
- multiple-trace echo**. See SECOND-TRACE ECHO.
- multi-year ice**. Old ice up to 3 meters or more thick which has survived at least two summer's melt. Hummocks are even smoother than in second-year ice. The ice is almost salt-free. The color, where bare, is usually blue. The melt pattern consists of large interconnecting irregular puddles and a well-developed drainage system.
- Mumetal**, *n.* The registered trade name for an alloy of about 75% nickel and 25% iron, having high magnetic permeability and low hysteresis.