

### Defense Meteorological Satellite Program - DMSP

LEO, Polar Orbiting Satellites

6 satellites in orbit

### Wind Direction

Average direction from which wind is blowing

### Air Mass

Body of Air over a Large Area

Takes on characteristics of the Underlying Surface

Temperature and Moisture Characteristics are the Same

### Tropical Depression

An organized system of clouds and thunderstorms with a defined, closed surface circulation and maximum sustained winds of less than 34 knots

### Ocean Eddies

Independent circulations of cold or warm water

Generally found on either side of strong currents such as the Gulf Stream or Kuroshio

Used tactically by submarines because of the sound propagation differences that exist inside and outside the eddie circulations

### Wave Height

The vertical distance from the crest of a wave to the trough of the wave

### Flood

The current that flows toward the shore with a rising tide

### 3 Types of Currents

Open Ocean

Littoral

Rip

### Spilling Breaker

Occur w/ Gentle Flat Beaches

### Plunging Breaker

Occur w/ Moderate to Steep sloping Beaches

### Four Major Ocean Sediments

Terrigenous

Pelagic

Glacial Marine

Volcanic

### Pressure

Sound Speed increases 2 feet/second for every increase in depth of 100 feet

Dominant controller of speed below 1000 feet in the ocean

### Small Craft Warning

Winds Sustained at 18-33 knots

Forecasted for harbors and inland waters

### Tropical Cyclone Conditions of Readiness - TCCOR

TCCOR 5 - Destructive winds are possible within 96 hours

TCCOR 4 - Destructive winds are possible within 72 hours

TCCOR 3 - Destructive winds are possible within 48 hours

TCCOR 2 - Destructive winds are anticipated within 24 hours

TCCOR 1 - Destructive winds are occurring or anticipated within 12 hours

### Geostationary Operational Ent'l Satellites - GOES

24/7 Coverage over the same Geographic Region

Monitors weather systems and storms

4 GOES Satellites in Orbit

### Relative Humidity

Percentage of the amount of water in the air compared to how much water can actually be held based on temperature & pressure

### Warm Front

Replaces Colder Air

### Tropical Storm

A distinct rotation must exist around the central area of low pressure and wind speeds must be between 34 and 63 knots. At this point the tropical storm is given a name.

### Cold Eddy

Cold Eddies form on the south side of the Gulf Stream and maintain a counterclockwise circulation

### Bioluminescence

The types are sheet, spark, and glowing ball.

Most bioluminescence in the oceans is sheet-type

Spark-type displays are created by large numbers of crustaceans

Glowing ball displays are seen most frequently in warmer waters. Luminescent jellyfish cause many glowing-ball displays

### Littoral Longshore Currents

Caused by Waves Approaching the Beach at an Angle

Increase Velocity with Increased Breaker Heights

Steep Beaches have stronger currents

### Surging Breaker

Occur w/ Very Steep Sloping Beaches and are dangerous for Landing Craft

### 3 Thermal Layers of the Ocean

Mixed/Surface Layer

Thermocline

Deep Layer

### Salinity

Sound Speed increases 4 feet/second for every increase in salinity of 1ppt

Effects are greatest for Ocean water in areas of high evaporation and high influxes of fresh water

### Gale Warning

Winds Sustained at 34-47 knots

Forecasted for harbors, inland waters, ocean areas, installations, and air fields

### the Nautical Almanac

Contains the following data tabulated at hourly intervals to a precision of 0.1 arc minute: the Greenwich hour angle and declination of the Sun, Moon, and navigational planets; the Greenwich hour angle of Aries; positions of the navigational stars; rise and set times of the Sun and Moon for a range of latitudes

### Polar Operational Ent'l Satellites - POES

A.K.A. TIROS-N Satellites

Collects Data Globally

There are 6 POES Satellites in orbit

### Wind Speed

Average rate of air motion

Measured in nautical miles/hour or Knots

### Cold Front

Displaces Warm Air at the Surface

### Restricted Visibility

Prevailing Visibility falls below 7 Nautical Miles or 10 Statute Miles

### Hurricane/Typhoon

Wind speeds must be at least 64 knots

### Warm Eddy

Warm Eddies form on the north side of the Gulf Stream and drift into the colder waters of the Labrador Current maintaining their clockwise rotation

### Sea Waves

Also known as wind waves, are waves generated by the wind in the local area

### Wave Period

The time it takes for a complete wave cycle (crest to crest or trough to trough) to pass a given point

### Open Ocean Currents

Major Currents like the Gulf Stream and Kuroshio

### 3 Breaker Types

Spilling

Plunging

Surging

### Ocean Fronts

Interface btwn 2 Water Masses of Different Temperatures and Salinities

### Mixed/Surface Layer

Isothermal Temperature with Depth

From the ocean surface to about 1500 feet

### Temperature

Primary Controller of Sound Speed in the top 1000 feet of the ocean

Sound Speed increases 6 feet/second for an increase in 1 degree centigrade

### Storm Warning

Winds Sustained at 48 knots and greater

Forecasted for harbors, inland waters, ocean areas, installations and airfields

### the Astronomical Almanac

Contains precise ephemerides of the Sun, Moon, planets, and satellites, data for eclipses and other astronomical phenomena for a given year

### Nat'l Polar Orbiting Ent'l Satellite System-NPOESS

Will Replace the POES and DMSP

### Tropical Rainfall Measuring Mission-TRMM

Joint venture btwn NASA and Japanese Nat'l Space Development Agency

Research the water cycle in the atmosphere

### Fronts

Transitions between two Air Masses

### Fog

Suspension of small water droplets or ice crystals in the air that reduces visibility at the surface

### Thunderstorms - TS

Formed when cumulous clouds grow into cumulonimbus clouds



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### Bathythermograph - BT

The measurement and recording of subsurface water temperature at various depths

BT data is the critical factor in determining the sound velocity profile (SVP) of a particular ocean area

### Swell Waves

Waves that have moved away from the area in which they were formed

### Ebb

The current that flows away from the shore with a falling tide

### Rip Currents

NOT Associated w/ Tides

Caused by return flow of water from the beach

Form at the end of a beach where land juts out into the water

### 5 Major Ocean Provinces

Continental Shelf

Continental Slope

Continental Rise

Ocean Basins

Mid-Ocean Ridges

### Thermocline

Describe by its rapid decrease in temperature with depth from the layer above it

### METOC & GEOINT

METOC data is a layer of Geospatial Intelligence and is critical to planning and operations in the joint environment

### Severe Thunderstorm Warning

TS are w/in 10NM or an hour away

Gusts of 50 kts or Greater = 3/4" Hail and/or Tornadoes



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