

OUTLINE OF A BRIEF "HISTORY OF OCEANOGRAPHY"

The Polynesians: begin extensive voyages by 1500 B.C. Colonize Hawaiian Islands between 450 - 600 A.D. Colonized major islands between New Zealand, Easter Island and eventually Hawaii.

The Phoenicians: approx. 1150 BC to 350 B.C. Excellent navigators and sailors

The Greeks: Aristotle (384 - 322 B.C.) Understands basic principles of Hydrologic Cycle. Relates tides with the moon, began classifying marine organisms Pytheas discovers the Canary Current, explores British Islands, relates tides with the moon.

Eratosthenes : approx. 276 - 194 BC, of Alexandria Egypt . Correctly calculates circumference of the earth, distance to moon and sun, tilt of the earth's axis and compiles a star catalog with 675 stars. Invents Latitude and Longitude.

Ptolemy : 87 - 150 AD, a Greek mathematician, astronomer, geographer makes 1st world atlas. Lists over 8,000 places with Lat / Long. Also incorrectly calculates circumference of earth, off by ~30%

After Ptolemy.... THE MIDDLE AGES for approx. next 1,000 years, ~500 - 1500.

The Vikings: (AD. 700 - 1,000) Voyage to and colonize Iceland & Greenland. Eventually voyage to " Vineland " or Northeastern North America. Considered barbarians by most Europeans. Excellent sailors.

Bede: (AD. 673 - 735) calculates tides in the eastern Atlantic Ocean. Sailors use his calculations until the seventeenth century.

Chinese Navigators: ~1405 - 1433 Admiral Zheng He commanded 317 ships and 37,000 men! Explored mostly in Indian Ocean , gave away goods.

Late 1400's, early 1500's: Prince Henry the Navigator, The Age of Discovery.

**1700's: Captain James Cook (1728 - 1779)
Ben Franklin (1706 - 1790)**

1800's: Formal beginning of scientific thought.

Ed Forbes (1815 - 1854)
Charles Darwin (1809 - 1882)
Mathew Maury (1806 - 1862)
Sir James Clark Ross (1800 - 1862)

1872 - 1876: H.M.S. Challenger expedition.
Known as the NEW AGE OF OCEANOGRAPHY.
Wyville Thomson

Fridtjof Nansen (1861 - 1930) Pioneering zoologist, explorer, athlete oceanographer. Designs the wooden ship *Fram*, frozen in Arctic ice for 35 months with 13 men in June 1893. 1st professor of Oceanography.

Late 1800's: Radioactivity discovered. Eventually global radiometric age dating revises ideas of geologic time before WWII.

Between H.M.S. Challenger & W.W. II: Transportation, defense, fisheries and marine resources in relationship with temperatures, salinity and currents, plankton studies.

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Alfred Wegener (1880 - 1930) "Continental Drift"

The Titanic sinks the night of April 14th, 1912.

Post W.W.II: Echo Sounding, 1960's: Sea Floor Spreading (SFS) in 1960 & The Theory of Plate Tectonics between 1965 and 1968. R/V (research vessel) Glomar Challenger
DSDP Deep Sea Drilling Project established
IPOD International Phase of Ocean Drilling established
IDOE International Decade of Ocean Drilling established

1980's & 1990's: The JOIDES Resolution,
Submersibles and ROV Robotics, AUV's, Autonomous Underwater Vehicles
Marine Resources: food & fresh water, oil, gas, minerals, Aquaculture
Energy: currents, waves, tides oil, gas, solar, transportation

Defense.... Computers..... Satellites..... Remote Sensing.....POLLUTION

Institutes currently doing active research include:
Scripps Institute of Oceanography U.C..... San Diego, La Jolla
Lamont Doherty Geological Observatory, Columbia University , NY
Woods Hole Oceanographic Institute, MIT, Massachusetts

**Texas A & M University of Rhode Island
University of Miami University of Washington , Seattle
Oregon State University, Corvallis, University of Delaware
Duke University, Boeuford N.C. Corpus Christy**

Local Monterey Bay Institutions:

**MLML: Moss Landing Marine Labs, San Jose State & the Cal State System
Long Marine Lab, U.C. Santa Cruz
Hopkins Marine Station in Monterey, Stanford University
CSUMB California State University Monterey Bay
MBARI Monterey Bay Aquarium Research Institute
Naval Post Graduate School, Monterey**