

2022 -2024 EDUCATIONAL SKILL REQUIREMENTS
Meteorology and Oceanography Operational Sciences
Subspecialty Code 6401P
Curriculum 373

1. Curriculum Number: 373
2. Curriculum taught at: Naval Postgraduate School
3. Curriculum Length: 30 Months
4. APC Required: 233 for NAVPGSCOL. (345 Waiverable)
5. The officer must understand the fundamental concepts and be familiar with the basic functional areas of Meteorology and Oceanography (METOC) Operational Sciences within the Department of the Navy (DON) and the Department of Defense including the below. Educational Skill Requirements for the Meteorology elements will comply with the World Meteorological Organization Basic Instruction Package for Meteorologists (BIP-M). Detailed explanation for the meteorology related ESR criteria below may be found in Part II of WMO-1083.
 - a. ESR-1: Mathematics: The officer will understand the mathematical principles and techniques necessary to complete graduate level course work and research related to meteorology and oceanography.
 - b. ESR-2: Physical Meteorology: The officer will master the meteorological principles and techniques necessary to understand and forecast synoptic and mesoscale weather phenomena, including unique characteristics of various regions such as tropical, polar and coastal areas.
 - c. ESR-3: Physical Oceanography: The officer will master the oceanographic principles and processes influencing ocean circulation, mesoscale weather, waves and turbulence. This includes unique characteristics of various regions such as polar, mid-latitude and coastal areas.
 - d. ESR-4: Sensing: The officer must be able to observe, assimilate, analyze, and predict tactical, synoptic and coastal meteorological and oceanographic conditions using direct and remote sensing observation techniques. This understanding should include the basic principles of design and operation of autonomous unmanned vehicles, as well as operator manned, fixed remote and satellite systems.
 - e. ESR-5: Dynamics: The officer will have a sound understanding of polar, mid-latitude, tropical, and coastal oceanographic and meteorological dynamics, from turbulence to climate scales. The officer will be able to articulate the impact of these region's conditions on military operations and systems.
 - f. ESR-6: Acoustics: The officer will understand acoustical phenomena affecting propagation of sound in the ocean environment including aspects of acoustic variability and

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uncertainty. The officer will be able to articulate the impact of these conditions on systems and platforms and provide recommendations for employment of assets on military operations.

g. ESR-7: Climatology: The officer will understand the principles that effect global circulation and long-term environmental trends.

h. ESR-8: Prediction: The officer will have a thorough understanding of numerical prediction systems as it applies to the physics and dynamics of the ocean and atmosphere. This understanding should include a broad understanding of the modeling systems to include strengths, weaknesses, and vulnerabilities; the state of current models and techniques; and appropriate applications of deterministic and stochastic techniques.

i. ESR-9: Problem Solving and Warfare Application: The officer will develop critical thinking skills and conduct independent analyses to solve environmentally challenging problems in the field of meteorology and oceanography as it applies to Naval/Joint operations, using modern scientific research techniques, field experience, tools, and equipment. This will include understanding of the theory and design principles of tactical decision aids used in fleet operations.

j. ESR-10: (Prospective) Space Environment: The officer will have a sound understanding of the space environment. The officer will be able to articulate the impact of space weather on military operations and systems.

6. Major Area Sponsor and Subject Matter Experts.

a. Major Area Sponsor: VADM Jeffrey E. Trussler, Deputy Chief of Naval Operations for Information Warfare (OPNAV N2N6).

b. Subject Matter Expert: RDML Ron J. Piret, Oceanographer and Navigator of the U.S. Navy (OPNAV N2N6E).

APPROVED:

[Redacted Signature]
Major Area Sponsor

12/10/04
[DATE]

APPROVED:

[Redacted Signature]
President, NPS

[DATE]

APPROVED:

[Redacted Signature]
Director, OPNAV N7

27-Feb-24
[DATE]

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