Program Executive Office
Command, Control, Communications, Computers and Intelligence (PEO C4I)

Battlespace Awareness and Information Operations Program Office (PMW 120)
Overview for NDIA Fall Forum

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PMW 120 Provides Information Warfare Capabilities

Vision
Provide quality Information Warfare capabilities to the warfighter that improve the kill chain

Mission
Deliver assured intelligence, meteorology, oceanography, and information operations data, products, and services that provide Information Warfare capabilities to the Fleet

PMW 120 delivers...

• Net-ready intelligence, meteorological, oceanographic, and information operations products and services
• The ability to seize and control the Information domain high ground
• A decisive competitive advantage across the range of Navy missions

PMW 120 is a leading program office in enabling Information Warfare
About PMW 120

Government Workforce - 60
• Military: 13
• PEO Civilians: 24
• SPAWAR embedded employees: 23

FY18 Total Obligation Authority - $441.360M
• Research & Development: $92.983M
• Other Procurement: $242.280M
• Operations & Maintenance: $95.966M
• Shipbuilding and Conversion: $8.231M
• Spectrum Relocation Funds: $1.900M

Programs and Projects – 23
• 2 ACAT IAC
• 1 ACAT II
• 4 ACAT III
• 2 Pre-ACAT III
• 3 ACAT IV
• 4 AAPs
• 5 Projects
• 2 Pre-Projects

PMW 120 Strategic Focus

Operational Impact:
Provide high quality products and services that satisfy Fleet requirements and enable EMW capability

Acquisition Professionalism:
Apply Acquisition and program management expertise to proactively manage cost, schedule, and performance of our efforts throughout the lifecycle

Stakeholder Engagement:
Collaborate with stakeholders to improve capability delivery to the Fleet
PMW 120 Acquisition Programs

Information Operations (IO)
- SSEE Increment E (ACAT III)
- SSEE Increment F (ACAT II)
- SSEE Modifications (ACAT III)
- Spectral (Pre-ACAT III)
- CCOP (3 AAPs, Project)
- Classic Reach (Project)
- ICADS Increment 2 (Pre-Acq)
- ICADS Sustainment (Project)

Meteorology and Oceanography (METOC)
- NITES-Next (ACAT III)
- METMF(R) NEXGEN (ACAT IVT)
- LBS UUV (ACAT IVM)
- HWDDC (AAP)
- RSCD (Project)
- POPS-OIS (Project)

Intelligence, Surveillance and Reconnaissance (ISR)
- DCGS-N Increment 1 (ACAT IAC)
- DCGS-N Increment 2 (ACAT IAC)
- AIS (ACAT IVT)
- ICOP (ACAT III)
- MIBS (JTT) (Project)

Providing Information Warfare capabilities to the warfighter that improve the kill chain
# Intelligence, Surveillance, and Reconnaissance (ISR) Capabilities

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<th>Material Solution Analysis</th>
<th>Technology Maturation &amp; Risk Reduction</th>
<th>Engineering &amp; Manufacturing Development</th>
<th>Production &amp; Deployment</th>
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<td>Systems Acquisition</td>
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<td>Sustainment</td>
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### Distributed Common Ground System – Navy (DCGS-N) Increment 2
- Improving target quality intelligence by delivering advanced analytic capabilities and automated workflows both afloat and at ashore enterprise nodes

### Intelligence Carry On Program (ICOP)
- Responds to multiple Fleet requirements (C5F/C3F UONs)
- Delivers a suite of Multi-INT, analytical capabilities, and extends the ISR Enterprise/DCGS FoS to Unit Level Platforms
- Supports FMV receive, process, exploit, and disseminate capabilities

### Distributed Common Ground System – Navy (DCGS-N) Increment 1
- **Block 1** provides enhanced precision target geo-positioning, point mensuration, and imagery dissemination
- **Block 2** builds on Block 1 and provides enhanced IMINT, Collection Management tools, and additional storage in support of TCPED

### Joint Tactical Terminal – Maritime (JTT-M)
- Provides Navy surface platforms with the capability to receive, exchange, and process Over-the-Air, Near-Real-time, time-critical intelligence and targeting information carried over the Integrated Broadcast Service (IBS)
- Filters, translates, and distributes critical tactical information to multiple shipboard Tactical Data Processors (TDPs)

### Automatic Identification System (AIS)
- Collects commercial vessel AIS data to improve situational awareness and safety of navigation
- Supports Safety at Sea / Navigation, Maritime Interdiction Operations (MIO), Overseas Contingency Operations (OCO), and Homeland Defense mission areas

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**Identifying Maritime Patterns of Life (Big Data)**

**Providing Automated Workflows and Analytics**

**Robust portable Intel system Enhancing warfighter’s Common Operational Picture**

**Improved Vessel Tracking**

**JTT-SR is integrated into AN/USQ-151**
Information Operations (IO) Capabilities

- **Spectral**
  - Exploitation equipment that is scalable to platform, reconfigurable to mission, modular (plug and play), and dynamically reprogrammable to support new threats/capabilities.
  - The Next Generation system will be integrated with Shipboard Combat Systems and it will improve automation, operability, intuitiveness in tasking, collection, processing, exploitation, and dissemination.

- **Cryptological Carry-on Program (CCOP)**
  - Exploitation equipment capable of processing various Signals of Interest, providing geo-location data, and ingesting off-board intelligence data.
  - Low-cost solutions that address dynamic advancements in commercial and foreign military telecommunications systems.

- **Ship’s Signal Exploitation Equipment (SSEE) Increment F**
  - Provides a standardized IO weapon system across multiple maritime platforms based upon a common core capability.
  - Includes a small configuration variant (7/8) to meet dynamic mission requirements.
  - Sailor providing routine maintenance to the AS-4623 IO Antenna.

- **Ship’s Signal Exploitation Equipment (SSEE) Modifications**
  - Consists of Graywing and Paragon frequency capability enhancements to address objective requirements set forth in SSEE Inc F CPD and PACFLT Urgent Operational Needs.

- **Classic Reach**
  - Delivers net-centric infrastructure enabling integration of IO portfolio capabilities into a world-wide sensor grid.
# Meteorology and Oceanography (METOC) Capabilities

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<td>Systems Acquisition</td>
<td>Sustainment</td>
<td>Primary Ocean Prediction System (POPS)</td>
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- **Remote Sensing Capability Development (RSCD)**
  - Provides enhanced remote sensing capability to the Fleet

- **Hazardous Weather Detection and Display Capability (HWDDC)**
  - HWDDC extracts data from the SPS-48 radar to generate weather situational awareness products.

- **Naval Integrated Tactical Environmental System-Next Generation (NiTES-Next)**
  - Software-centric, Information Technology (IT) Streamlining program, provides capabilities to process, store, and analyze METOC data and products
  - Assesses the impact of present and forecasted METOC conditions

- **Littoral Battlespace Sensing – Unmanned Undersea Vehicle (LBS UUV)**
  - **Giders** provide long endurance sensing of ocean thermal and optical data critical to weapon and sensor performance planning and execution
  - **Autonomous Undersea Vehicles** collect high resolution bathymetric and bottom imagery for use in weapon and sensor performance planning and execution and safety of navigation

- **Marine Corps Meteorological Mobile Facility (Replacement) Next Generation (METMF(R) NEXGEN)**
  - Provides the Marine Corps with a persistent capability to characterize the current and future battlespace environment to support mission planning and execution

- **Oceanographic Information System (OIS)**
  - Sustaining Navy’s global oceanographic and hydrographic surveying and processing capabilities in support of USW and Safety of Navigation

- **Sustaining Navy’s high-performance computing capabilities that provide METOC data and information products in support of naval, joint and coalition warfighters at strategic, theater and operational levels of war.**
Operational Vision - Integrated Fires, part of Electromagnetic Maneuver Warfare (EMW)

- Integrate kinetic and non-kinetic fires
- High Side Fusion (HSF)
- Combat Systems Integration (CSI)
- Battle Management Aids (BMA)
- Fully integrating National Technical Means (NTM), organic sensors and weapon systems information

Enabled By Key Technologies:

- Integrate systems across PMW 120 portfolio
- Homogenize user interfaces – “Microsoft Ribbon”
- Data framework (analytic, ingest, data tagging)
- Robust Cross Domain Solution

Direct Benefit To Fleet/Sailors

- Allow analysts to focus on analysis
- Reduce training time through improved usability
- Provide ability to tailor systems to mission
- Present data to Sailor based on role

Focus on shortening the kill chain (kinetic and non-kinetic)
Future Capability Development
EMW/IF Alignment

**CURRENT STATE:** Systems are NOT integrated and interoperable to meet emerging threats

**END STATE:**
System of Systems interoperability that provides
- Accurate combat ID
- Complete Blue Force mission suitability assessments
- Optimal Force synchronization
- Target quality geolocation
- Automated asset allocation recommendations
- Coordinated C2 / C-ISR tools
- Single Integrated Picture (SIP)
- Complete spectrum awareness and control
- Full spectrum cyber operations
- Full spectrum NAVWAR

**Phased delivery of new and continuously enhanced capability over time**

- **Phase I**
  - High Side Fusion
  - Increased Automation
  - Spectrum Management
  - Sensor Cross-Cueing

- **Phase II**
  - Non-Kinetic Fires
  - Optimized Maneuver
  - Enhanced OTHT
  - Counter-ISR&T
  - HALO COP

- **Phase III**
  - Int NTM & Tactical Geolocation
  - Comms in a DDIL Environment
  - NAVWAR

- **Battle Management Aids**
- **Combat Systems Integration**
- **Automated Assessment and COAs**
Future Opportunities

DCGS-N Increment 2
- Tactical Activity Based Intelligence (ABI) capabilities and Object Based Production (OBP)
- Provide software-centric cloud-enabled ISR&T solution
- Automated fusion, detection, and exploitation
- Improved SA through High Side Multi-INT Fusion and NTM
- Leverages TCPED architecture for reach back

Spectral
- Provides hosting platform for surface SIGINT and Cyber capabilities (supports third party quick reaction capabilities)
- Key component of the EMW/IF and RTSO architectures
- Supports Distributed Operations based on Joint/National/Coalition interoperability standards
- Leverages SSEE Increment F delivered capabilities

NITES-Next
- Operate a Mobile Variant in the Afloat, Ashore, USMC, and NSW Operating Environments
- Provide capability to evaluate the predicted performance of Electromagnetic (EM) sensors and platforms
- Provide Electro-optical (EO), Surf Forecast, Tides and Currents, Beach Chart, and Search and Rescue (SAR) capabilities
- Leverage Cloud (e.g. Amazon Web Services (AWS)) for Training Environment
Where Industry Can Help
Collaboration Opportunities

Enhanced Data Discovery and Access
- Real time fusion of historical and real time sensor data with pattern recognition
- Data correlation, including correlation V&V of multiple correlation engines / ‘pre-ingest correlated’ data.
- Ingesting, storing, accessing, and archiving large data sets
- Advanced analytics of distributed data across multiple clouds
- Data synchronization in D/DIL
- Ability to rapidly deploy new Signals Of Interests (SOIs)

Electromagnetic Maneuver Warfare / Integrated Fires
- Combat ID and automated application of integrated non-kinetic fires
- Automated tactical planning aides for targeting of non-kinetic and C4ISR attacks

Integration of persistent unmanned sensors information to measure environmental conditions
- Electromagnetic spectrum propagation forecasting, management, and exploitation
- All Source / All Domain Intelligence collection
- IO Warfare / IO Warfare support capabilities

Modular radio frequency antennas and signal conditioning technologies
- Algorithms for low frequency/high attenuation signals to enable the SSEE FoS enhanced Electronic Support and Electronic Attack capabilities

Remoting and Distributed Operations
- Optimize spectrum utilization
- Electromagnetic interference (EMI) mitigation
- Countering emerging signals
- Modeling and simulation
- Multifunction antennas
- Electromagnetic spectrum management and exploitation
- Intelligence collection
- Distributed IO Warfare / IO Warfare Support

Cross Domain Solutions
- Multiple security clearance enclaves (GENSER, SCI, coalition, unclassified)
- Data formats, encrypted/secure protocols
- Improved Low Cost CDS
Industry Engagement Opportunities

Competitive Opportunities

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<th>Program</th>
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<td>Services and Products: Design, Integration, Testing</td>
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<td>NITES-Next FCR-3</td>
<td>Q1FY17</td>
<td>Design, Development, Testing</td>
</tr>
<tr>
<td>Spectral</td>
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R&D Opportunities

- **Rapid Innovation Fund (RIF)**
  - Accelerate fielding of innovative of high TRL technologies into military systems / Programs of Record (PoRs)
  - Preference to small business, merit-based, two step “application” process – fields in 2 years

- **Office of Naval Research Science and Technology (ONR S&T) Efforts**
  - Fosters transition from Navy S&T projects into PoRs, requires research / development to minimum of TRL 6.
  - Capability gaps assessed and communicated annually to Industry, offering Industry the opportunity to engage and propose their technologies for a specific capability need/gaps

- **ISR (PMO) NSA Cryptologic Support Services Investment**
  - Tactical SIGINT Technologies (TST): targets SIGINT shortfalls
  - Maritime Cryptologic Capability (MCC): addresses urgent need for emergent technology

- **Small Business Innovative Research (SBIR) / Small Business Technology Transfer (STTR) Program**
  - SBIR: goal to transition new / innovative capability into PoRs via multiple phases approach
  - STTR: small businesses partner with not-for profit research institutions (such as universities) to bring capability from academia / marketplace partnerships into PoRs.
PMW 120 Points of Contact

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We Deliver Information Warfare Capabilities to the Fleet.

Visit us at www.peoc4i.navy.mil