INFORMATION SYSTEMS

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Advanced Planning Briefing to Industry

MR. SCOTT WHITE
JPM INFORMATION SYSTEMS
Joint Program Executive Office
for Chemical and Biological Defense
scott.white@jpmis.mil

MR. CHUCK FROMER
Deputy Division Chief
Joint Science and Technology Office
for Chemical and Biological Defense
charles.fromer@dtra.mil
Outline

- Program Overview
- Information and Analysis S&T and Warfighter Needs
- Technical Challenges
- Acquisition Strategy / Funding / Schedule
- Upcoming Business Opportunities
- Contacts
• Mission: Provide and use information and analysis capabilities to enable and support operational & programmatic decision-making.

• Portfolio Areas:
    • Enable prediction of initial hazards, exposures, casualties, and infections
    • Enable timely and accurate warnings and recommended actions
  – Operational Effects & Mitigation: The “So What?” & “What Can I Do to Fix it?”
    • Enable Assessment & Mitigation of Impacts at the Person, System, Tactical, Operational, and Strategic Levels
  – Data: The “What Data Tells Us That?”
    • Enable Discovery, Access, & Usability of CBRN Data Per DoD Data Policies

• User focus: CBRN Defense, C-WMD Operations, & WMD Analysis
  – DoD Core Super-Users: DTRA RD-IS, IDA, AFRL, ECBC, & NSWC
  – DoD General-Users Conducting Military & Civil Support Operations
  – Non-DoD: DHS & UK as Super-Users; Other Allies as General-Users
Focused Innovative Technology (FIT) Programs

- $3-$10M / yearly, over a 3-5 year duration
- Pursue a significant new capability or area of knowledge
- Team approach in complementary areas (Multidisciplinary)

Strategic Exploratory and Emerging Discoveries (SEEDs)

- $50-$500K 1 year
- ‘Explore’ concepts for new programs

“Fruits” of the process are the new capabilities or technologies
Providing CBRN data and services to stakeholders across all levels of command, optimizing decision support, and shared situational awareness across DoD and HD.

Enterprise solutions supporting collection, analysis, and dissemination of actionable CBRN information.
<table>
<thead>
<tr>
<th>Hazard Prediction &amp; Mitigation</th>
<th>Operational Effects &amp; Mitigation</th>
<th>Data</th>
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</thead>
</table>
| - Rapid Source Term Estimation  
- Validated Source Determination and Hazard Refinement  
- Initial High Altitude Modeling  
- Waterborne T&D  
- Interior modeling  
- JEM S&T Prototype  
- Urban Dispersion  
- Missile Intercept  
- Improved Atmospheric Boundary Layer Modeling  
- Updated Land-use and Climatology  
- DTRA Integrated WMD Tool Set (IWMDT) Program  
- DTRA Reachback Program | - Expanded agents for contagious disease and NTA modeling  
- Leverage Military Protective Action Distances (MPAD) and advances in JCID-on-a-Chip development/integration  
- Operations & Planning Needs (CBOSS Reconstituted = Gen-1)  
- Analysis Support Program | - System Performance Needs (e.g., Gen-1 T&E Simulations)  
- Chemical Biological Warfare Agent Effects Manual Number 1 (CB-1 Gen-1)  
- Analysis Support Program |
JSTO Mid Term (FY14-15) Plans

Hazard Prediction & Mitigation
- Initial Release Source
- Source Term Models (NTA Source, Missile Intercept)
- Atmospheric Transport & Dispersion
- Urban Dispersion
- Waterborne Transport & Dispersion
- Agent Fate of CWAs and NTAs, Atmospheric Chemistry
- DTRA Integrated WMD Tool Set (IWMDT) Program
- DTRA Reachback Program

Operational Effects & Mitigation
- Material Behavior
- Demonstrate that JCID-on-a-Chip can be embedded in TAC-BIO and used to make a detection, can be successfully integrated with the Joint Tactical Radio System (JTRS), and can be used to communicate with JWARN to provide warning downwind of the hazard
- Operations & Planning Needs (CBOSS Gen-2)
- Analysis Support Program

Data
- System Performance Needs (e.g., Gen-2 T&E Simulations)
- Chemical Biological Warfare Agent Effects Manual Number 1 (CB-1 Gen-2)
- Analysis Support Program
JSTO Far Term (FY16+) Plans

Hazard Prediction & Mitigation
- DTRA Integrated WMD Tool Set (IWMDS) Program
- DTRA Reachback Program

Operational Effects & Mitigation
- Analysis Support Program

Data
- Analysis Support Program

Cross-Portfolio Area Plans

JEM & JWARN - Spiral Development of S&T as Advancements in Data, Modeling, Simulation, and Technology Become Available
JWARN Warfighter Needs

- Collect, generate, edit, and disseminate NBC reports and plots and provide a means of ensuring all addressees have received a sent message
- Application support for GCCS-J/A/M/AF, JTCW/C2PC
- Allow NBC Reports (NBC-1/NBC-4) to be formatted and transmitted within 2 minutes, and allow operator selection of automatic, delayed, or on-command sending of NBC reports
- Provide C2 interface with both legacy and developmental sensors
JEM Warfighter Needs

- A single, accredited source for CBRN Hazard Modeling
- Model Urban Effects
- Model in Coastal & Littoral Environments
- Source Term Estimation
- Model High Altitude Missile Intercept Effects
- Improve accuracy of Nuclear Detonation models
- Improve Transport and Dispersion Methodologies
- Model Waterborne Hazards
- Model Contagious Diseases
- Model Complex Structures and Building Interiors
- Model Human Performance Degradation
- Interior Modeling
## Information and Analysis S&T Challenges

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Focus</th>
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<tbody>
<tr>
<td>CBRN hazards on complex environments and scenarios</td>
<td>JEM</td>
</tr>
<tr>
<td>Rapid assimilation and processing of CBRN-related data to support advanced tactical and T&amp;E applications</td>
<td>JWARN, T&amp;E, Other types of analysis</td>
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<tr>
<td>Developing engineering level models of CBRN defense equipment and major DoD systems in CBRN hazard environments</td>
<td>T&amp;E and other types of analysis</td>
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<td>Building a CBRN relevant data architecture to support M&amp;S, analysis, and IT development that facilitates decision superiority</td>
<td>ALL</td>
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<tr>
<td>Integrating CBRN-related IT with other emerging technology initiatives</td>
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<tr>
<td>Operational effects methodologies</td>
<td>Operational Effects Requirements</td>
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Program Technical Challenges

JWARN

- Integration of multiple Chemical and Biological Sensor interfaces (Legacy and Developmental)
- Compatibility with multiple Service-specific implementations of C2 systems
- Evolving C2 system architecture(s)
- Web Enablement
- Integration with Major Defense Acquisition Programs (MDAPs)
- Wireless connectivity incorporating Information Assurance (IA) Requirements
- Bi-Directional Cross Domain Solution (CDS)
- Coordination with sensor community on best methods of implementing CCSI
- Coordination with sensor community on utilizing JoaC capabilities (embedded or external) to support data transmission to network and supporting Service CONOPS
Program Technical Challenges

JEM

- Incorporation of S&T to meet Inc. 2 requirements and facilitate rapid transition of S&T modeling components
  - Use of Common CBRN Model Interface (CCMI)
- Clustering configurations using JEM Web Service on various Joint and Service C4I systems
- Use on various Operating Systems (XP, Vista, Win7)
- Integration with Joint and Service-specific needs
  - Weather Interfaces (MDS, JWIS, IMETS, AFWA, METGM, GRIB)
  - Mapping Tools (JMTK, C/JMTK, Falcon View, ARCIMS, Google Maps, Google Earth, NASA World Wind)
  - Hardware Configurations (Networks and CPU Power)
Program Technical Challenges

Software Support Activity (SSA)

- Net-Centric Policy Implementation
  - Transition to programs composed of modular web services
  - Implementation of CBRN Data Model
  - Continued implementation of CCSI

- Support Interface/Interoperability Standards
  - Harmonize CBRN Data Model with other communities
  - Harmonize CCSI with other communities
  - Propose other standards for CBRN based on community needs

- Management Of Enterprise Common Components
  - Approve and manage proposed common components
  - Support reuse of common components as “building blocks” for future capability

- Information Assurance In SOA Environments
Information and Analysis
S&T Capability Development Strategy

- Adapt S&T development strategy to new JSTO FIT/SEED paradigm

- Balance Between Requirements Pull:
  - Align with the Joint Requirements Office (JRO) to address Capability Needs
  - Align with Joint Program Executive Office (JPEO) Programs to address Technology Gaps
  - Answer critical science questions that support policy, doctrine and requirements decisions

- ... and Technology Push:
  - Centralize investment in Applied Research (6.2 & 6.3)
  - Identify and exploit technology opportunities
  - Identify and respond to new and emerging threats
  - Transition new and innovative technologies with JPEO
  - Maintain a robust technology base: knowledge, research capabilities, and T&E methodologies
Program Acquisition Strategy

JWARN

- 2 Increments of development followed by Pre-Planned Product Improvement (P3I)

- Increment 1 (FY06 – Present)
  - Late addition of requirements forced continuation of development
    - Milestone C / Low Rate Initial Production – MAY 2008
    - Multi-Service Operational Test & Evaluation (S/W) – AUG 2008
    - Operational Demonstration (S/W) – OCT 2009
    - Full Deployment Decision (S/W) – SEP 2010
    - Modernization efforts supporting migration to web services supporting US Army C2 Architecture (S/W) – AUG/SEP 2011

- Increment 2 (FY12 – FY16)
  - Evolve JWARN Architecture into Web Services (SOA) to accommodate evolving Service C2 strategies and decrease dependence on their architecture
  - Sensor data fusion to support source term estimation
  - Optimal Sensor Placement
  - False Alarm Reduction
  - Interoperability with Medical Surveillance Systems
  - Emerging and original Increment 2 requirements based on ORD
  - AoA will assess evolving Service needs and determine final capability requirements for JCID capabilities
Program Acquisition Strategy

JEM

- Increment 1 (present-FY15)
  - Maintain JEM Baseline for various C4I systems (Updates/IA/Security)

- Increment 2 (FY10-FY16)
  - MDD: 4QFY09
  - AoA (limited): 1QFY11
  - MS A: 2QFY11
  - AoA (update): 3Q-4QFY11
  - Multiple sources for required technologies (Government, industry, international)
  - Collaboration with the JSTO
    - JEM Increment 2 integration (single JEM POR and S&T integrator)
    - Common CBRN Modeling Interface (CCMI) implementation
    - CCMI compliant JEM Science & Technology Prototype (JSTP)
  - Software development and system integration contracts
JPEO-CBD Enterprise Management

- Build partnerships for the integration of technology
- Builds consensus for major governance and acquisition decisions
- Responsible for Horizontal Integration across the Enterprise

CBDP Enterprise
- Discoverable Services
- Enhanced Situational Awareness
- Actionable Intelligence
- Decision Support

Shared Situational Awareness

Trail Bosses
- PEOs/JPMs
- IM/IT
- NTAs
- MDAPs
- Bio Surv
- IBD

Future Users
- 20th Support Command

Joint Warfighter

Homeland Defense
- Homeland Security
- Medical Community
- National Guard
- NATO/Coalition Partners
- DoS

Trail Bosses
- IM/IT
- NTAs
- MDAPs
- Bio Surv
- IBD
- PEOs/JPMs
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<tr>
<th>$(K)$</th>
<th>FY12</th>
<th>FY13</th>
<th>FY14</th>
<th>FY15</th>
<th>FY16</th>
<th>TOTAL</th>
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<tr>
<td>6.2</td>
<td>22,481</td>
<td>24,332</td>
<td>19,753</td>
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<td>6.3</td>
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<td>10,437</td>
<td>10,877</td>
<td>8,908</td>
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<td>TOTAL</td>
<td>32,113</td>
<td>36,516</td>
<td>30,190</td>
<td>27,707</td>
<td>30,697</td>
<td>187,920</td>
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### Upcoming Business Opportunities - S&T

<table>
<thead>
<tr>
<th>Solicitation/Opportunity</th>
<th>Time Period</th>
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<tbody>
<tr>
<td><strong>Focused Innovative Technologies (FITs) and Strategic Exploratory and Emerging Discoveries (SEED) investments</strong></td>
<td>OPEN</td>
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<tr>
<td>FIT: Focused investments into critical mass programs ($MM/3-7Yrs)</td>
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<tr>
<td>SEED: Used to prime FIT programs and create core knowledge foundation ($100K-500K)</td>
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<tr>
<td><strong>Small Business Innovation Research (SBIR) program</strong></td>
<td>November 2011</td>
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<tr>
<td>Opportunity for Small Business engagement in S&amp;T program</td>
<td></td>
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<tr>
<td>Lead to contract and grant awards</td>
<td></td>
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<tr>
<td>- <a href="http://www.dodsbir.net/solicitation/default.htm">http://www.dodsbir.net/solicitation/default.htm</a></td>
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<td><strong>Directed Research in DTRA CB Directorate</strong></td>
<td>As Needed</td>
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<tr>
<td><strong>DTRA R&amp;D Innovation Office – Science and Technology New Initiatives BAA (HDTRA1-07-RDINO-BAA)</strong></td>
<td>OPEN</td>
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<tr>
<td><strong>DTRA Fundamental Research to Counter Weapons of Mass Destruction BAA (HDTRA1-09-14-FRCWMD-BAA)</strong></td>
<td>OPEN</td>
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Information and Analysis (CBI)
S&T Points of Contact

- Mr. Jerry Glasow, Division Chief, DTRA CBI
  jerry.glasow@dtra.mil

- Mr. Charles Fromer, Deputy Division Chief, DTRA CBI
  charles.fromer@dtra.mil

- Science & Technology Managers
  - Mr. Rick Fry, DTRA CBI, Hazard Prediction Information & Analysis
    rick.fry@dtra.mil
  - Dr. John Hannan, DTRA CBI, Warning & Reporting Information & Analysis
    john.hannan@dtra.mil
  - Dr. Chris Kiley, DTRA CBI, Operations Planning Information & Analysis
    christopher.kiley@dtra.mil
  - Mr. Eric Lowenstein, DTRA CBI, System Performance Information & Analysis
    eric.lowenstein@dtra.mil
## JPM IS Program Funding

<table>
<thead>
<tr>
<th>$(K)$</th>
<th>FY11</th>
<th>FY12</th>
<th>FY13</th>
<th>FY14</th>
<th>FY15</th>
<th>FY16</th>
<th>FY17</th>
<th>TOTAL</th>
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<tr>
<td>RDT&amp;E</td>
<td>26,886</td>
<td>16,754</td>
<td>31,237</td>
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<td>1,548</td>
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<td>TOTAL</td>
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<td>20,634</td>
<td>33,850</td>
<td>39,578</td>
<td>38,352</td>
<td>25,839</td>
<td>26,539</td>
<td>222,063</td>
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<td><strong>JPM IS SSA</strong></td>
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<tr>
<td>• Seaport Support IDIQ Multiple Award Contract</td>
<td>FY11 and Beyond</td>
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<tr>
<td><strong>JWARN Increment 1 – Software update, modernization and maintenance</strong></td>
<td></td>
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<tr>
<td>• SPAWAR HQ Seaport -E</td>
<td>FY13 and Beyond</td>
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<tr>
<td>• RFP 1QFY13</td>
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<tr>
<td><strong>JWARN Increment 2 -Development, Integration</strong></td>
<td>FY 13 and Beyond</td>
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<td>• RFP 1QFY13</td>
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<tr>
<td><strong>JEM Increment 1 – Software update, sustainment, and maintenance (includes FMS)</strong></td>
<td>FY12 and Beyond</td>
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<td>• SPAWAR HQ Seaport-E</td>
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<tr>
<td>• RFP (GFI Technical Package included)</td>
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<tr>
<td>• Award 2QFY12</td>
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<tr>
<td><strong>JEM Increment 2 – Development, Integration, &amp; Competitive Prototyping (includes JSTP)</strong></td>
<td>FY13 and Beyond</td>
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<tr>
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Program Points of Contact

- Mr. Scott White, JPM IS
  scott.white@jpmis.mil

- Mr. Mike Steinmann, Deputy JPM IS and SSA Director
  michael.steinmann@jpmis.mil

- Mr. John Haigis, Director of Operations
  john.haigis@jpmis.mil

- Mr. David Godso, JPM IS Chief Engineer
  david.godso@jpmis.mil

- Mr. Thomas Smith, JEM Acquisition Program Manager
  thomas.r.smith@jpmis.mil

- Mr. Mike Steinmann (acting), JWARN Acquisition Program Manager
  Michael.steinmann@jpmis.mil