Product Description Document
Experimental HEMS Tool

Part 1 – Mission Connection

1. Product Description: The experimental Helicopter Emergency Medical Services (HEMS) Tool can overlay multiple fields of interest: ceiling, visibility, flight category, winds, relative humidity, temperature, icing, satellite, radar (base and composite reflectivity), G-AIRMETs, SIGMETs, METARs, TAFs, and PIREPs.

All 3D data are interpolated to AGL altitudes and can be sliced horizontally on 1000 ft. intervals up to 5000 ft. All data is time synchronized to go back up to 6 hours and forward up to 6 hours. The tool has high-resolution basemaps from ESRI, including colored relief and satellite.

Overlays include navigational aids, airports, and heliports for the entire United States. More detail is revealed as you zoom in and individual layers can be turned on or off independently.

2. Purpose/Intended Use: HEMS operate in a demanding environment. They provide an invaluable service to the public by providing crucial, safe, and efficient transportation of critically ill and injured patients to medical care facilities. While the contribution of HEMS is profound as a component of the nation's medical infrastructure, from an operational standpoint, it is a commercial aviation activity performed by FAA certificated air carrier operators. Therefore, operations must have the highest level of safety.

A review of the commercial HEMS accidents from January 1998 through December 2004 revealed that controlled flight into terrain (CFIT), inadvertent flight into instrument meteorological conditions (IMC), and lack of operational control are predominant factors, particularly at night and during low visibility conditions. Of the 27 fatal HEMS accidents, 21 occurred during night operations. Of the 21 night accidents, 16 of the operations originated under visual flight rules (VFR); the pilots inadvertently flew into IMC conditions, resulting in a CFIT accident.

3. Audience/Users: At the request of the Federal Aviation Administration, the ADDS development team created a tool specifically designed to show weather conditions for short-distance and low-altitude flights that are common for the helicopter emergency medical services (HEMS) community. HEMS operators are extremely sensitive to changing and/or adverse weather conditions and need weather information presented quickly and effectively for pilots who may not be weather experts. To meet this need, the ADDS Flight Path Tool was used as a template for the new OpenLayers environment, which displays high resolution grids of critical weather parameters, particularly cloud ceiling and surface visibility. Using a highly interactive and intuitive tool that focuses on small, localized regions, HEMS operators gain critical weather awareness to make their flights safer for crews and patients.

4. Presentation Format: The HEMS Tool is an interactive online display. Weather parameters are displayed on high resolution ERSI basemaps. Overlays include navigational aids, airports and heliports throughout the CONUS.

5. Feedback Method/Period: The public comment period will begin February 2, 2015 and run through March 4, 2015.

Part 2 – Technical Description

1. Format and Science Basis: The HEMS tool is an interactive OpenLayers tool that displays multiple weather parameters on a single website. The tool itself is not a weather product; it is a tool that aggregates a number of existing weather products into a single, quick-glance, automated display. All underlying products have already gone through a safety risk management process. These weather products are overlaid on high-resolution GIS basemaps and can be selected on or off from the top menu. The OpenLayers environment offers more core functionality and support for mobile devices.

2. Availability: The HEMS Tool will be continuously updated and available online: http://testbed.aviationweather.gov/hemst

3. Additional Information: N/A