MEA 498/598: National Weather Service Student Internship
Fire Weather, HazMat, and DSS Worksheet

Name _____ Date _____
Shift _____ Mentor _____

Pre-Suppression Fire Weather Forecast (FWF):
The FWF is a general forecast of specific weather elements pertaining to fire management, indicating the *worst* probable weather conditions (for fire management) during the forecast period. The most critical fire weather parameters are:

- Maximum Temperature
- Minimum Relative Humidity
- Wind Speed/Direction and Gusts
- Mixing Height
- Transport Wind

Mixing Height: Represents the top of the layer through which relatively vigorous mixing will take place. It is the height at which smoke will lose buoyancy and stop rising.

Transport Wind: The average wind speed/direction of all winds within the layer bounded by the surface and the mixing height. The Transport Wind provides information on horizontal smoke dispersion.

1) Have your mentor:
- Show how the Mixing Height is determined
- Show how the Transport Wind is determined

In the below space, explain what happens to the Mixing Height at sunrise and sunset in a situation where there is no thermal/moisture advection and strong radiational cooling (i.e. high pressure centered overhead during the winter).

2) Review the February 10, 2008 High Wind and Fire Weather Event Case Study (link below) and answer the following questions:
http://www4.ncsu.edu/~nwsfo/storage/cases/20080210/

A Red Flag Event occurs when critical weather conditions develop which could lead to extensive wildfire occurrence or extreme fire behavior.

- What are the criteria for a Red Flag Warning?
- What remote sensing tools can meteorologists use to detect wildfires?

3) Have your mentor show you the fire weather grids in GFE and how they are created.

4) The NWS is evolving to provide more Impact Based Decision Support Services (IDSS) to our customers. IDSS can be defined as *the provision of relevant information and interpretative*

services to enable core partners' decisions when weather, water, or climate has a direct impact on the protection of lives and livelihoods.

Work with your mentor to review the first four slides of this presentation that provides an overview of IDSS.

5) We perform IDSS like services all of the time. One example is a SPOT forecast. Work with your mentor to create a practice SPOT request (http://www.weather.gov/spot/?site=rah).

6) Sometimes the SPOTs are for fires or prescribed burns, other times we will provide them for Hazardous Materials (HazMat) events, critical incidents or other special events. You can see the locations and types of SPOT forecasts via this web page http://www.weather.gov/spot/monitor/. See if you can find SPOT forecasts for
P - Prescribed burn
W - Wildfire
H - HazMat
SAR - Search and Rescue
O - Other (fair, sporting event, etc)

7) If time permits, have your mentor introduce or even demonstrate some of the materials available on the DSS Hysplit page. https://sites.google.com/a/noaa.gov/nws-er-rah/program-areas/dss-hysplit