ACTIVITY: Weather Console (Weather Technician)

Big Question: *Based on the wind speed and direction will the weather clear the launch pad and the flight path in time to launch?*
Use the weather data from the wind speed conversion sheet to look at the radar to determine if the weather will clear the launch pad and the flight path in time to launch. Share your information with the meteorologist to determine whether the weather conditions will permit, delay, or scrub the launch.

Time	Convert wind from kts to miles/hr	Multiply mi/hr to mi/(fraction of the hour) of launch to get the number of miles the weather will move before the launch		Record wind direction	Observe radar and weather spokes. Will weather clear in time to launch? Yes/No
Example	15kt x 1.1508 = 17.262 mi/hr	17.262 X 20/60= 17.262 X .33 =	5.23 miles	N to S	Yes
	_____ kt x 1.1508 = _____ mi/hr	17.262 X _____/60= 17.262 X _____ =	_____ miles		
	_____ kt x 1.1508 = _____ mi/hr	17.262 X _____/60= 17.262 X _____ =	_____ miles		
	_____ kt x 1.1508 = _____ mi/hr	17.262 X _____/60= 17.262 X _____ =	_____ miles		
	_____ kt x 1.1508 = _____ mi/hr	17.262 X _____/60= 17.262 X _____ =	_____ miles		
	_____ kt x 1.1508 = _____ mi/hr	17.262 X _____/60= 17.262 X _____ =	_____ miles		
	_____ kt x 1.1508 = _____ mi/hr	17.262 X _____/60= 17.262 X _____ =	_____ miles		
	_____ kt x 1.1508 = _____ mi/hr	17.262 X _____/60= 17.262 X _____ =	_____ miles		
	_____ kt x 1.1508 = _____ mi/hr	17.262 X _____/60= 17.262 X _____ =	_____ miles		
	_____ kt x 1.1508 = _____ mi/hr	17.262 X _____/60= 17.262 X _____ =	_____ miles		

How to read direction and distance using radar data (sent from the Melbourne NWS Station):

Use the legend to understand the radar image. When you are charting speed and direction use the spokes and range rings. The range rings start 10 miles from Melbourne moving out toward the KSC Launch Pad. There are 5 miles between each range ring.
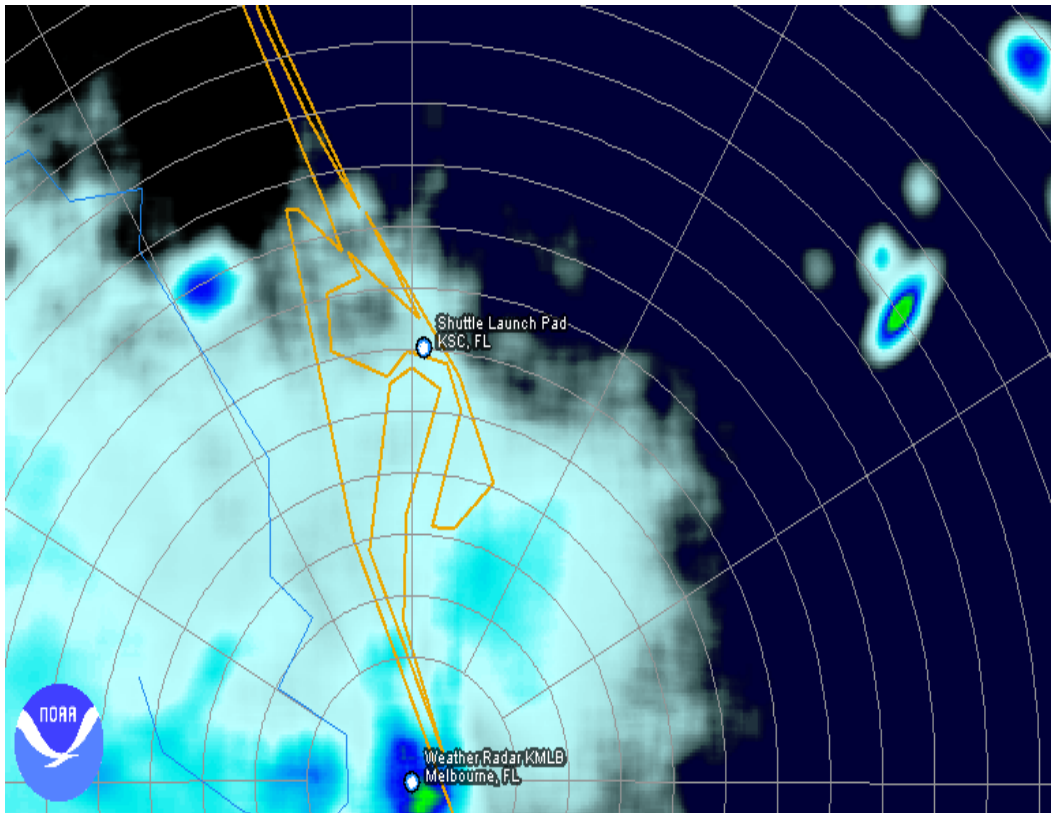
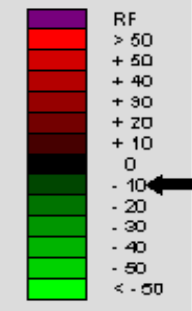**The Radar Velocity Legend**
Wind Velocity Mode

NEXRAD LEVEL-II
KMLB - MELBOURNE, FL

LAT: 28/06/46 N
LON: 80/39/14 W
ELEV: 35.0 FT
VCP: 32   ←   VCP- Volume Coverage Pattern

VELOCITY
ELEV ANGLE: 0.48

Wind Velocity is measures in Knots (KT)

Legend: (Category) KT

Color	Value	
RF	RF	
	> 50	**Positive Numbers** (warm colors) -show that the wind is moving away from the radar.
	+ 50	
	+ 40	
	+ 30	
	+ 20	
	+ 10	
	0	
	- 10	
	- 20	**Negative Numbers** (cool colors) -show that the wind is toward the
	- 30	
	- 40	
	- 50	
	< - 50	

Velocity - This product is used to estimate wind speed and direction.

Big Question: *Is it raining on the launch pad or in the flight path?*

Fill in the weather data on the data-recording sheet from the Digital Weather Display. To launch there can be no precipitation at the launch pad or within the flight path. Write yes or no to determine if the weather conditions are within the weather launch commit criteria. Share your information with the meteorologist to determine whether the weather conditions will permit, delay, or scrub the launch.

Time	Humidity	Pressure high 30+ or low 29.95-	Sky Conditions	Weather	Is the precipitation within Launch Commit Ranges? Launch? Yes/No
Example	**90%**	**29.90**	**Cloudy**	**Rain**	**No**

Big Question: *Will the temperature meet the Launch Commit Criteria for the shuttle launch?*

Fill in the weather data on the data-recording sheet from the Digital Weather Display. Share your information with the meteorologist to determine whether the weather conditions will permit, delay, or scrub the launch.

Time	Temperature	Is the temperature < 99 degrees Fahrenheit (F) for more than 30 minutes? > 48 degrees F?	Sky Conditions	Temp and sky conditions within launch commit ranges? Yes/No
Example	**70˚F**	**_____ 48 > 70˚ < 99**	**Clear**	**Yes**
		_____48 > _____< 99		
		_____48 > _____< 99		
		_____48 > _____< 99		
		_____48 > _____< 99		
		_____48 > _____< 99		
		_____48 > _____< 99		
		_____48 > _____< 99		
		_____48 > _____< 99		
		_____48 > _____< 99		
		_____48 > _____< 99		
		_____48 > _____< 99		

Big Question: *Will clouds stop the launch?*

Does the digital display show that there are clouds? If yes, look at the radar to fill in the chart. Share your information with the Meteorologist to determine whether the weather conditions will permit, delay, or scrub the launch.

Time	Cloud thickness Transparent (see-through) or Opaque (solid) 1	Transparent = yes Opaque = no 2	Distance in miles of the cloud from the flight path 3	Greater than 5 = yes Less than or equal to 5 = no Launch? Yes/No 4	Do the clouds hold precipitation/ lightning or thunder? 5	You must have yes in column 4 and no in 5 to launch Launch? Yes/No 6
Example	Opaque	No	10 miles	Yes	No	Yes

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Time	Clouds	Intensity of Precipitation (color)	Intensity of precipitation (dBZ-decibels)	Is precipitation within launch commit ranges Launch? Yes/No
Example	**Yes**	**Green**	**30 dBZ**	**No**