Open a web browser: CIRA (images), JTWC, ADT, NRL for microwave

What Dvorak pattern is it? (if possible attempt to apply step 2)

What is the 24 h trend?

What was the Dvorak FT rating 24h ago?

What would the MET be then?

What is the official Dvorak estimate? How does it compare?

What would the max wind speed be for this Dvorak rating using the table?

How does this compare to ADT? Official Vm estimate?
Exercises: Gita (use viewer)
Vis and IR

a. 12UTC 12 Feb. position 21.3S 175.9E:
24h change ? ______________________ (D+/D/D-/S/W-/W/W+)
24h change of microwave ? ______________________
Pattern? ______________________
DT? ______________________________ (use flowchart)
Comments: ______________________

Exercises: Gita (use viewer)
Vis and IR

a. 12UTC 12 Feb. position 8S 100.5E:
24h change ? ______________________
24h change of microwave ? ______
Pattern? _________________________
DT? ________________________
Comments: ___________________
b. 18UTC 11 Feb. position 21.6S 178.35E:

24h change  ? ______________________ (D+/D/D-/S/W-/W/W+)

24h change of microwave  ? ______________________

Pattern? ______________________

DT? __________________________(use flowchart)

Comments: ______________________
Exercises: Gita (use viewer)
Vis and IR

b. 18UTC 11 Feb. position 21.6S 178.35E:

- 24h change of microwave? ______________________
- Pattern? _____________________
- DT? ________________________(use flowchart)
- Comments: ___________________
Exercises: Gita (use viewer)

Vis and IR

c. 03UTC 10 Feb. position 16.5S 169.3W:

24h change ? ______________________ (D+/D/D-/S/W-/W/W+)

24h change of microwave ? ______________________

Pattern? ______________________

DT? ____________________________ (use flowchart)

Comments: ______________________
c. 03UTC 10 Feb. position 16.5S 169.3W:

24h change ? ______________________ (D+/D/D-/S/W-/W/W+)

24h change of microwave ? ______________________

Pattern? ______________________

DT? ______________________ (use flowchart)

Comments: ___________________
d. 03UTC 10 Feb. position 14.6S 172.3W:

24h change ? ______________________ (D+/D/D-/S/W-/W/W+)

24h change of microwave ? ______________________

Pattern? ______________________

DT? ______________________(use flowchart)

Comments: ______________________
Exercises: Gita (use viewer)

Vis and IR

d. 03UTC 10 Feb. position 14.6S 172.3W:
Exercises: Gita (use viewer)
Vis and IR

e. 03UTC 10 Feb. position 15.6E 179.1W :

24h change  ? ______________________ (D+/D/D-/S/W-/W/W+)

24h change of microwave ? ______________________

Pattern? ______________________

DT? ___________________________(use flowchart)

Comments: _____________________
Exercises: Gita (use viewer)
Vis and IR

e. 03UTC 10 Feb. position 15.6E 179.1W:

24h change ?

24h change of microwave ?

Pattern? _____________________

DT? ________________________(use flowchart)

Comments: ___________________
Dvorak Enhanced Infrared (EIR) Analysis Diagram

1. **START**
   - Locate Cloud System Centre (CSC) at the front point of the curved cloud bands or fronts. For initial development (TI), see Step 1a.

2. **Analyze using pattern below when visible**, then go to Step 3.
   - **(a) Curved Band** Pattern (Use spiral arc distance along 10° long spiral. Always use lightest sensor tone)  
     - When your storm pattern does not fit the description of any of steps in thru 6, do Steps 3, 4, 5, and 6, then return to Step 2 to indicate.
   - **(b) Shear** Pattern (Use center deflection and center's distance to close-overcast)  
     - **(i) 36 to 40**  
     - **(ii) 26 to 35**  
     - **(iii) 16 to 25**  
     - **(iv) 1 to 10**

2c. **"Eye" Pattern**
   - Was 24-hr T4 < 72°F?
     - **NO**
       - Go to Step 2d or 1
     - **YES**
       - Narrowed Eye
         - Surrounding grey shade
         - White or cloudier
         - Go to Step 3a or 1

2d. **"Embedded Center" Evidence**
   - Was 12-hr T4 < 70°F?
     - **YES**
       - Embedded Center
         - Surrounding grey shade
         - White or cloudier
         - Go to Step 3d or 1
     - **NO**
       - Step 3a or 1

3. **"Central Cold Core" Pattern**
   - This pattern initiates arctic development.
   - Determine past 24-hour trend.  
     - Development, Weakening, or Same indicated in a change of:  
       - (a) center or eye characteristics  
       - (b) center's development with the cold overcast

4. **Determine Model Expected T4o (MET)**
   - 0.5, 1.0, 1.5 (as determined by step 4 of 24-hour FT)

5. **Determine Pattern T4o**
   - Select pattern in diagram that best matches your storm pattern within one column of the MET. Adjust MET ± 5 when indicated.

6. **Final T4o Determination**
   - 1. Use data T4o from Step 2 when cloud features are clear.
   - 2. Use Pattern T4o when DT is not clear and adjustment to MET is made.
   - 3. For all other cases, use the MET.

7. **Current Intensity (CI) Number“**
   - 1. Use CI = Final T4o (PT) except when Final T4o shows change to weakening trend, or when redevelopment is indicated.
   - 2. For initial weakening, use CI 3 for 6-hour forecast. Final T4o, if it is not already done.

8. **24-Hr Forecast**
   - Extrapolate past trend unless one of the five rules in the instructions applies.

*Image details and text are not legible or clear enough for transcription.*
2C Eye patterns (EIR)

### Abbreviation | Grey Shade BD Curve | Temperature Range (°C) | Temperature Range (°K)
--- | --- | --- | ---
WMG | Warm Medium Grey | > +9°C | > 282
OW | Off White | +9 to -30°C | 243 - 282
DG | Dark Grey | -30 to -41°C | 232 - 242
MG | Medium Grey | -42 to -53°C | 220 - 231
LG | Light Grey | -54 to -63°C | 210 - 219
B | Black | -64 to -69°C | 204 - 209
W | White | -70 to -75°C | 198 - 203
CMG | Cold Medium Grey | -76 to -80°C | 193 - 197
CDG | Cold Dark Grey | ≤ -81°C | ≤ 192

### E-no: Eye number

<table>
<thead>
<tr>
<th>Minimal width</th>
<th>E-no: Eye number adjustment</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 0.5</td>
<td>&gt; 6.5</td>
</tr>
<tr>
<td>&gt; 0.5</td>
<td>&gt; 6.0</td>
</tr>
<tr>
<td>&gt; 0.4</td>
<td>&gt; 5.5</td>
</tr>
<tr>
<td>&gt; 0.3</td>
<td>&gt; 5.0</td>
</tr>
</tbody>
</table>

### E-adj: Eye number adjustment

<table>
<thead>
<tr>
<th>EYE TEMPERATURE</th>
<th>SURROUNDING TEMP</th>
</tr>
</thead>
<tbody>
<tr>
<td>WMG</td>
<td>0</td>
</tr>
<tr>
<td>OW</td>
<td>0</td>
</tr>
<tr>
<td>DG</td>
<td>0</td>
</tr>
<tr>
<td>MG</td>
<td>0</td>
</tr>
<tr>
<td>LG</td>
<td>+0.5</td>
</tr>
<tr>
<td>B</td>
<td>+1.0</td>
</tr>
<tr>
<td>W</td>
<td>+1.0</td>
</tr>
<tr>
<td>CMG</td>
<td>+1.0</td>
</tr>
<tr>
<td>CDG</td>
<td>+1.0</td>
</tr>
</tbody>
</table>

### E-no + E-adj = CF

Is CF < MET?  
NO  
DT = CF  
YES  
BF

DT = CF + BF
Jangmi

W surround 6.0  Eye: WMG/W 1.0

DT=7.0!
Jangmi

More difficult eye pattern

MG surround 4.5

Eye: OW/MG 0.0

-0.5 elongated eye

+0.5 band (?)

DT=4.0 - 4.5!
Hudhud
12UTC 11/10/14
Use image viewer
Hudhud
04-06UTC 12/10/14
Use image viewer
For three consecutive images prior to landfall
Hudhud

Vis

05UTC 12/10/14

Use image viewer

How does this compare with IR?
Determine if Eye is banding type or not.

Measure the embedded distance of the eye, or the average band width if eye is a banding type.

For small eyes, measure distance from center.

For large eyes (\( \geq 30 \text{ nm} \)) measure from edge.

Apply Values to E\# Table
Visible Eye
[CDO Central Dense overcast]
Visible Eye
[CDO Central Dense overcast]
Visible Eye
[CDO Central Dense overcast]

CDO

Measure narrowest distance
(This is for a Large eye, which defined as 30 nm or more inclusive)
Measure narrowest distance
(This is for a SMALL eye, which defined as 29 nm or less)
Treat the central coil (once around the eye) as the **CF** and add the **BF** as indicated.
Physical principle: greater involvement of the low level centre with the deep convection indicates a stronger system.

Method: Measure the distance from the low level centre to the edge of the "dense overcast"
Step 2B Shear pattern

Size of dense overcast > 1.5°

Low level cloud definition (circular)

Distance LLCC to dense overcast or strong T gradient (IR)

Shear pattern – Time averaging

Three hours later

DT = 1.5 ± 0.5

DT = 3.0 ± 0.5
Covered Centre patterns

CDO: 1 3/4 = 4.0
Banding +0.5
DT=4.5

Embedded in B
DT=5.0
Rank these TC Vis images in order of intensity: 1 weakest to 6 strongest
Review: What patterns are these?
STEP 2A Curved bands

Where is the curved band here?
Jangmi
Where is the curved band here?
Jangmi

IR:
Where is the curved band here?

Often IR is more difficult to resolve CB than vis
Where is the curved band here?

more difficult!

Multiples

Ranges

Changes from hour to hour >> loop
Curved Band pattern:
01A Ashobaa