



The Dvorak Technique

Case Study 2

JACK BEVEN
NATIONAL HURRICANE
CENTER

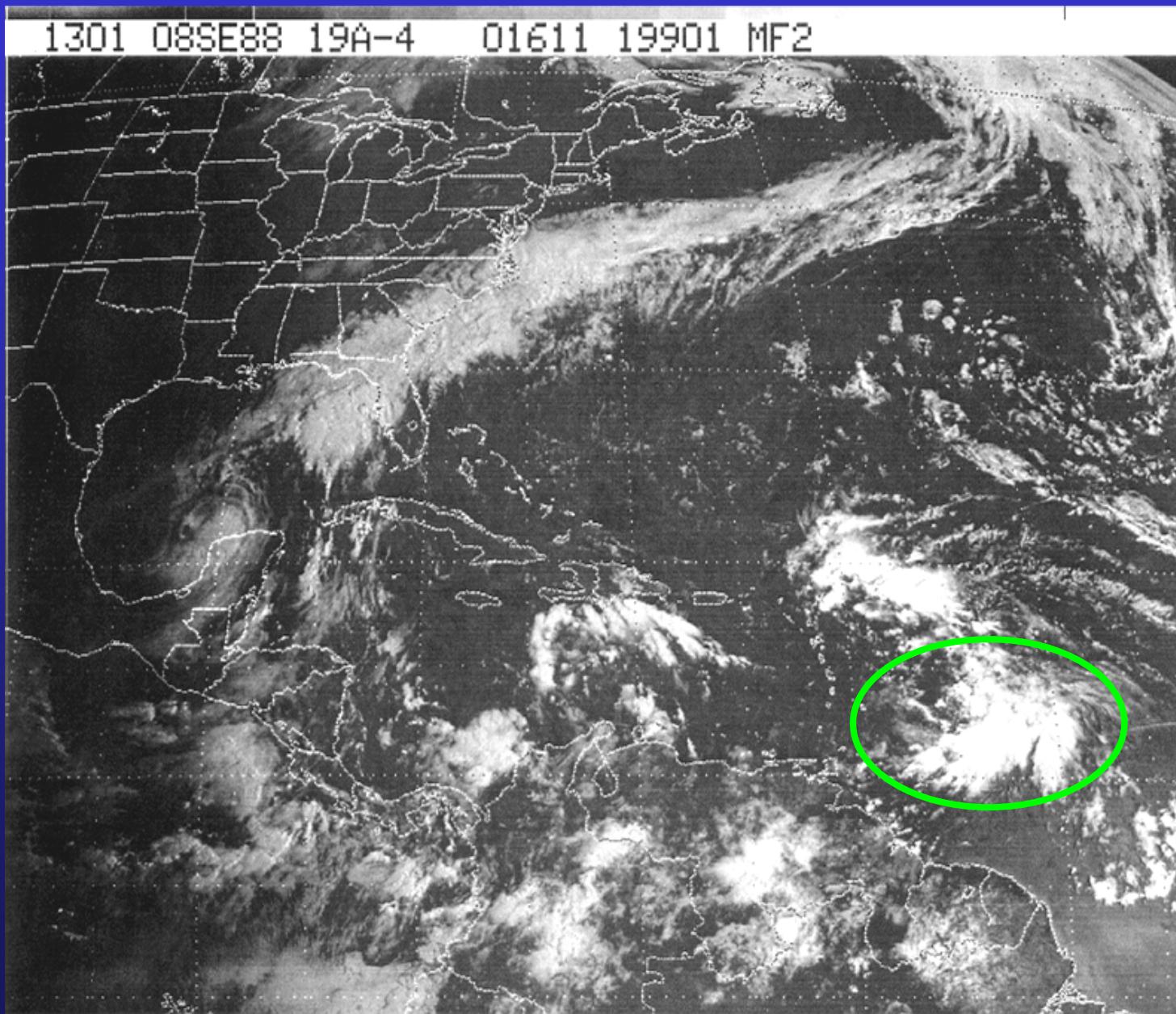
WHERE AMERICA'S CLIMATE AND WEATHER SERVICES BEGIN

Objective:

To perform Dvorak intensity analyses on the complete life cycle of a tropical cyclone.

Note: The answers you get may differ somewhat from the solutions in this case study. This represents some of the normal subjectivity and uncertainty associated with the Dvorak technique.

1301 UTC 8 Sep 1988



Issues for 1301 UTC 8 Sep 1988

This is the first classification - assume the system is developing and the MET=1.0

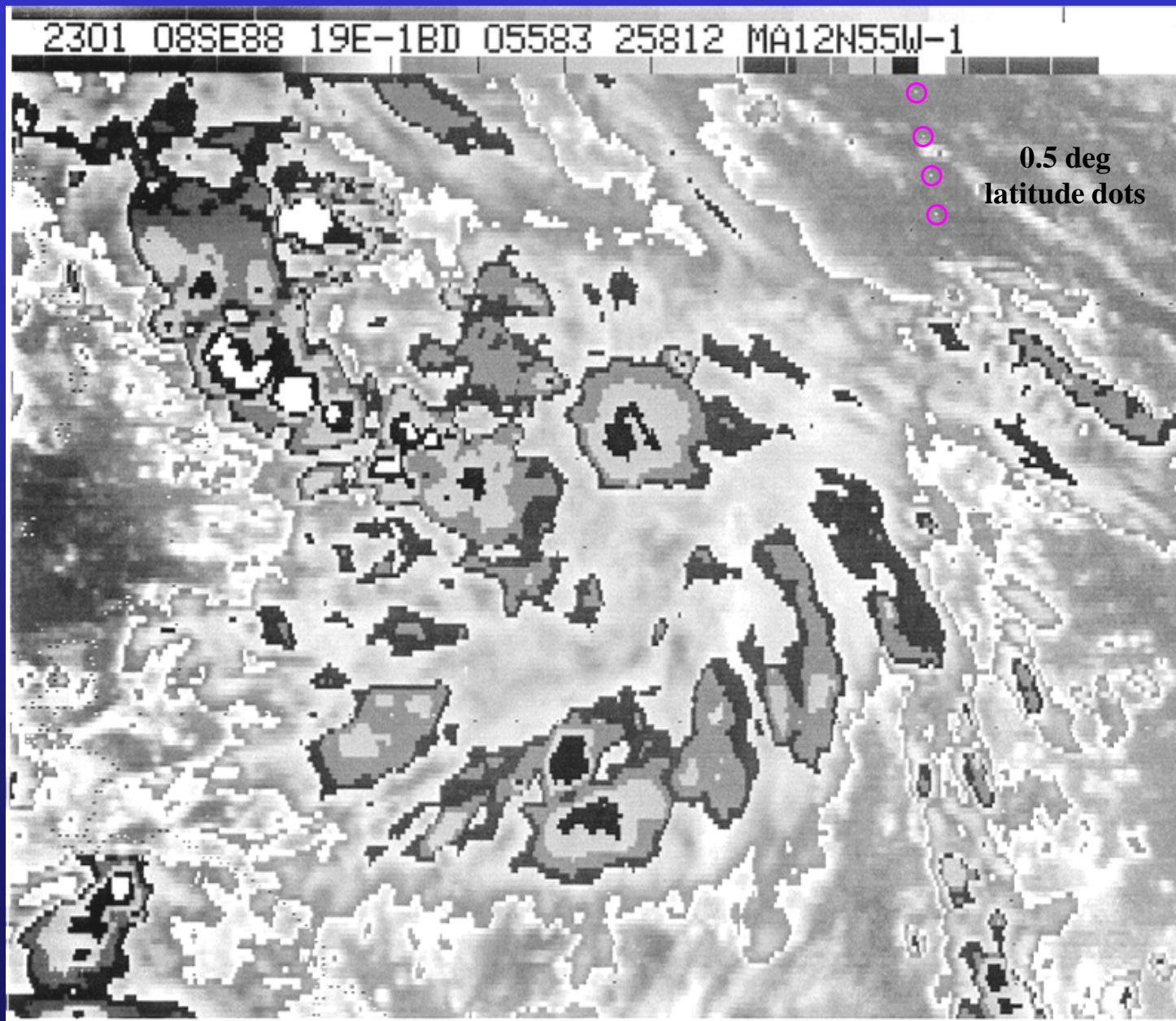
What cloud pattern does it have?

Is the DT representative of the true strength of the system?

What are the constraints on the first classification?

TROPICAL CYCLONE ANALYSIS WORKSHEET

2301 UTC 8 Sep 1988



Issues for 2301 UTC 8 Sep 1988

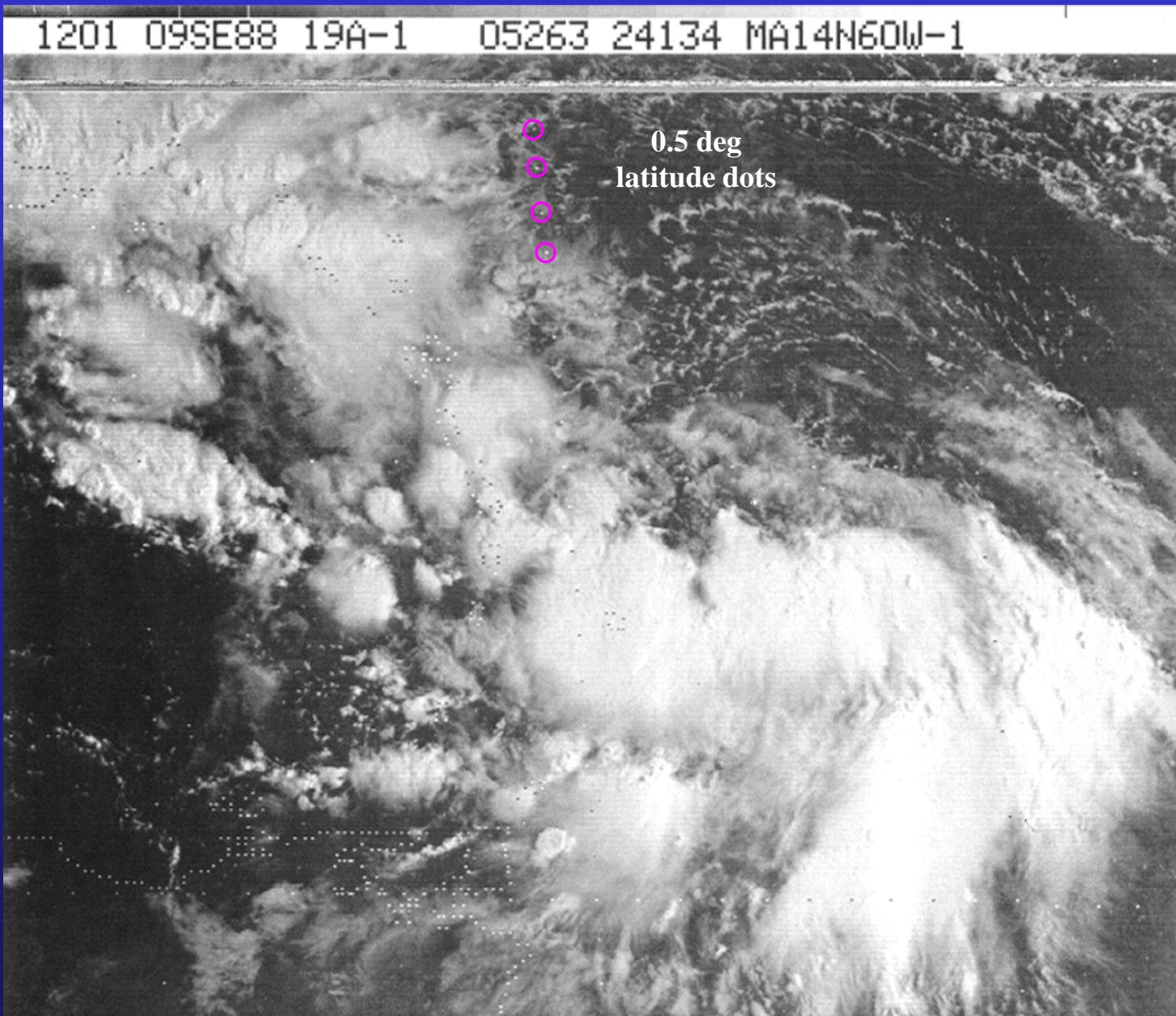
Assume the system is developing and the MET=1.5

What cloud pattern does it have and can it be measured?

If no DT number can be determined, what do you do?

TROPICAL CYCLONE ANALYSIS WORKSHEET

1201 UTC 9 Sep 1988



Issues for 1201 UTC 9 Sep 1988

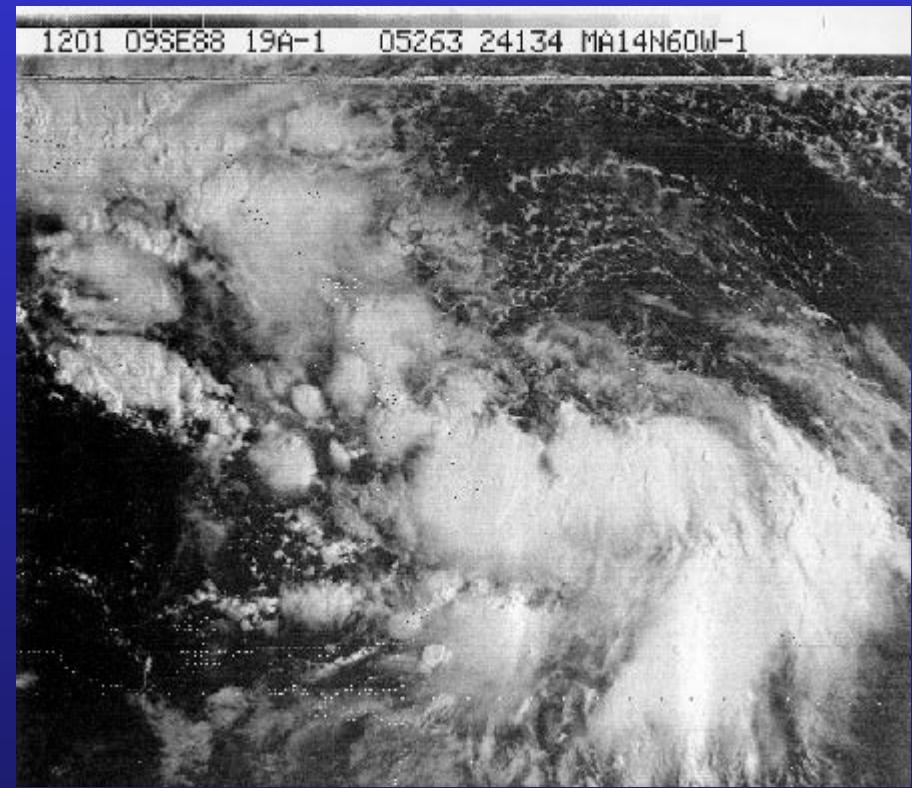
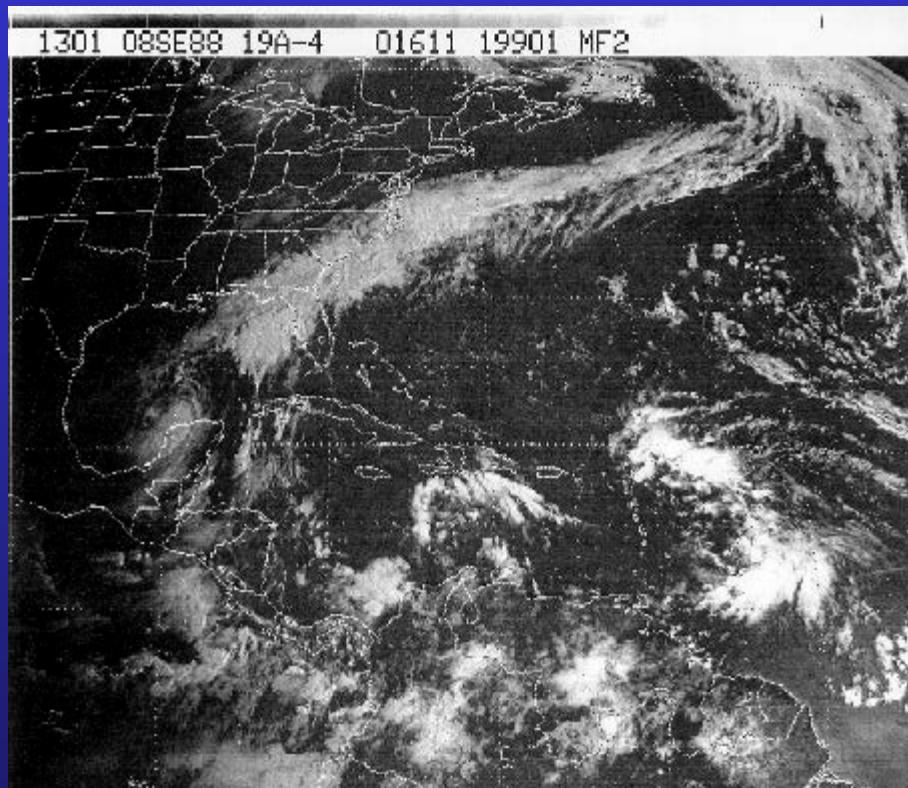
How has the system changed during the last 24 hours?

What clues are there of this in the imagery?

What cloud pattern can be used to measure this system?

Is the cloud pattern clear cut?

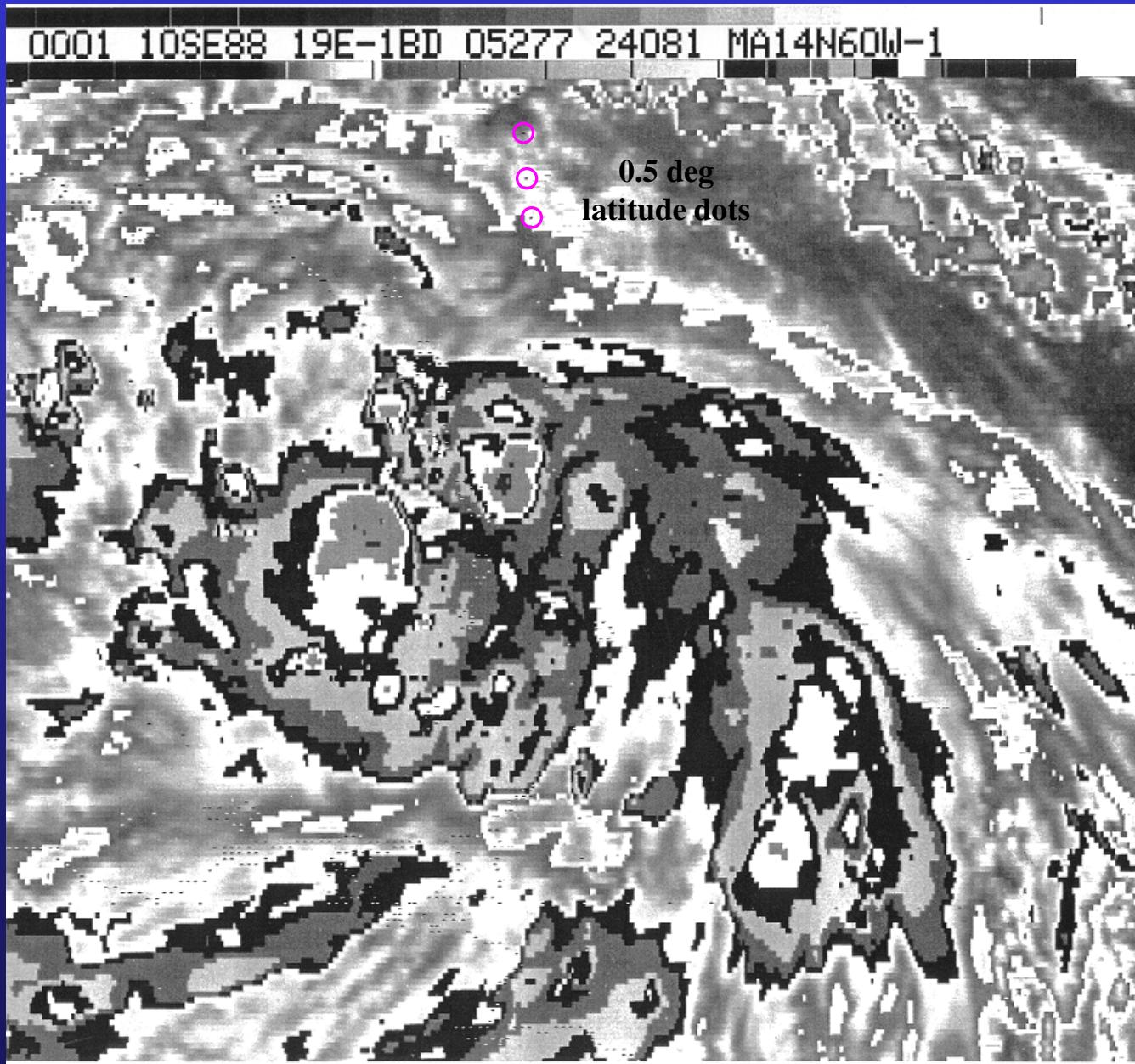
24 hr change?



D

TROPICAL CYCLONE ANALYSIS WORKSHEET

0001 UTC 10 Sep 1988



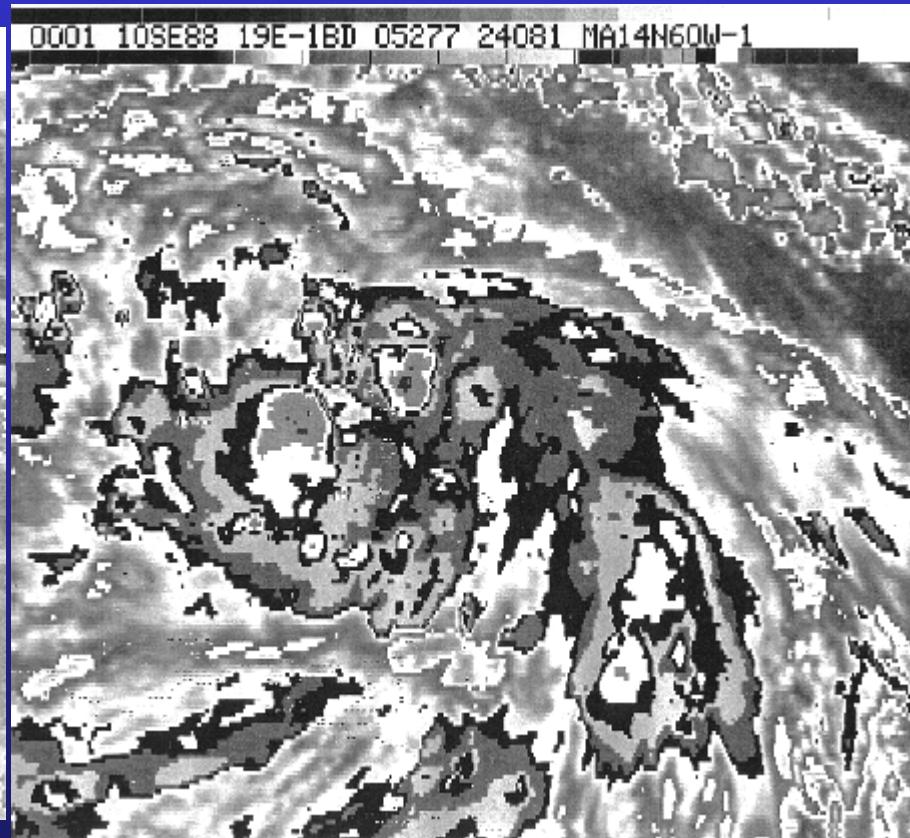
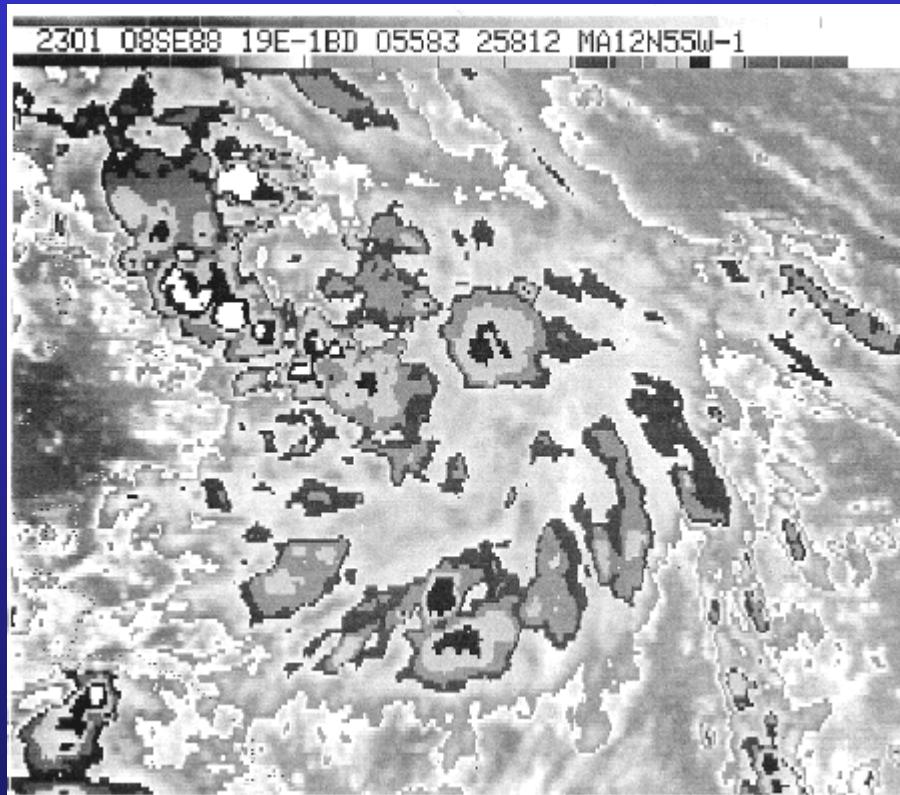
Issues for 0001 UTC 10 Sep 1988

How has the system changed during the last 24 hours?

What cloud pattern can be used to measure this system?

Is the cloud pattern clear cut?

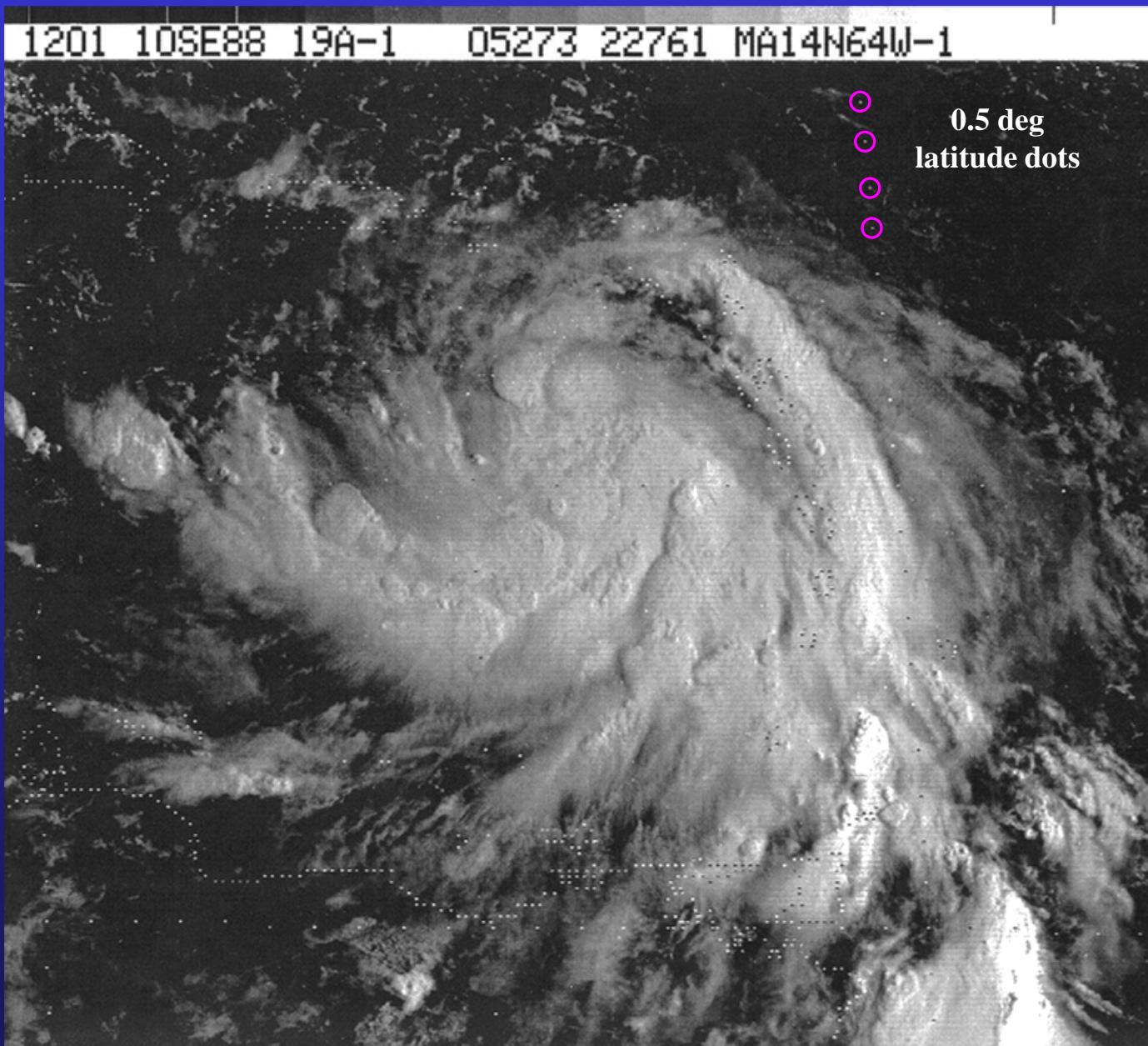
24 hr change?



D

TROPICAL CYCLONE ANALYSIS WORKSHEET

1201 UTC 10 Sep 1988



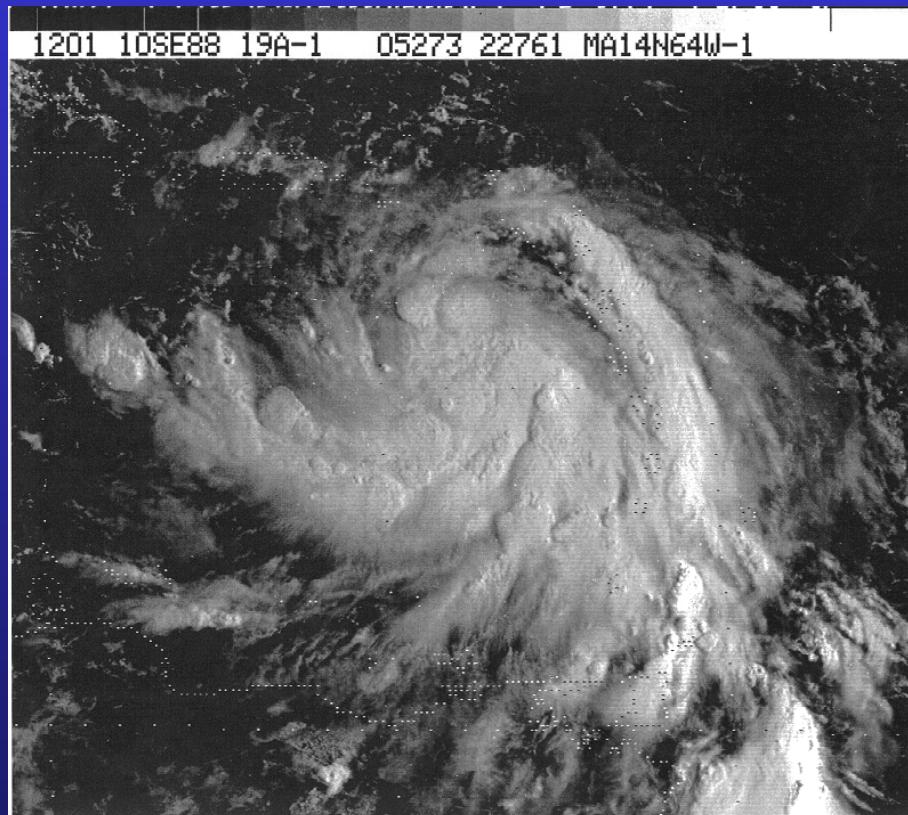
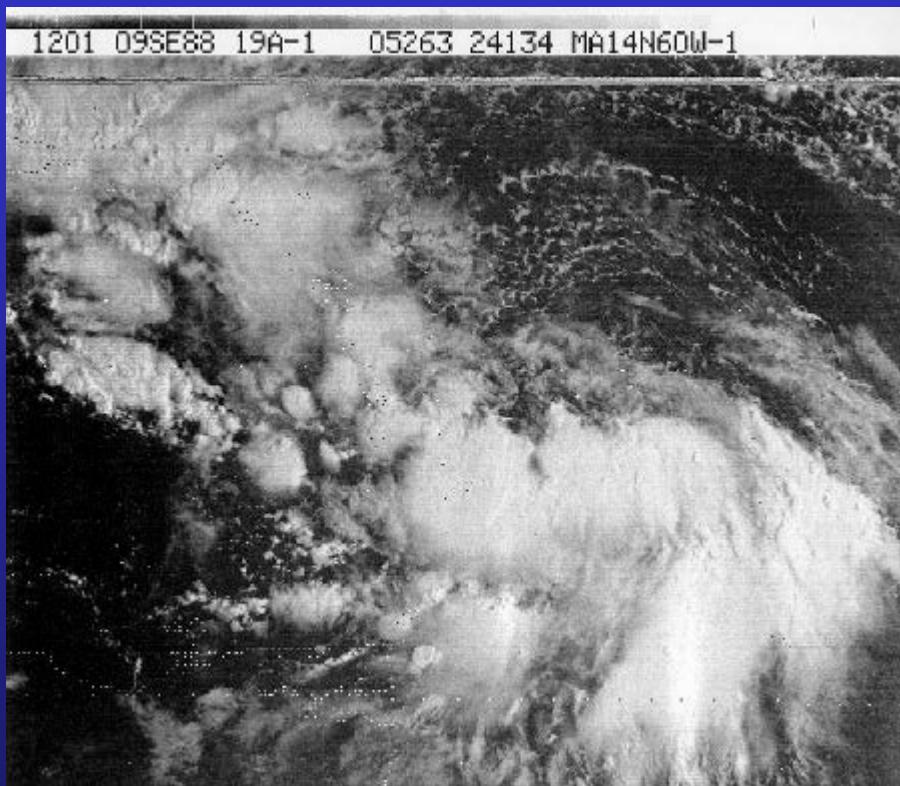
Issues for 1201 UTC 10 Sep 1988

How has the system changed during the last 24 hours?

What cloud pattern(s) can be used to measure this system?

Is the cloud pattern(s) clear cut? If you tried multiple cloud patterns, do they give the same DT?

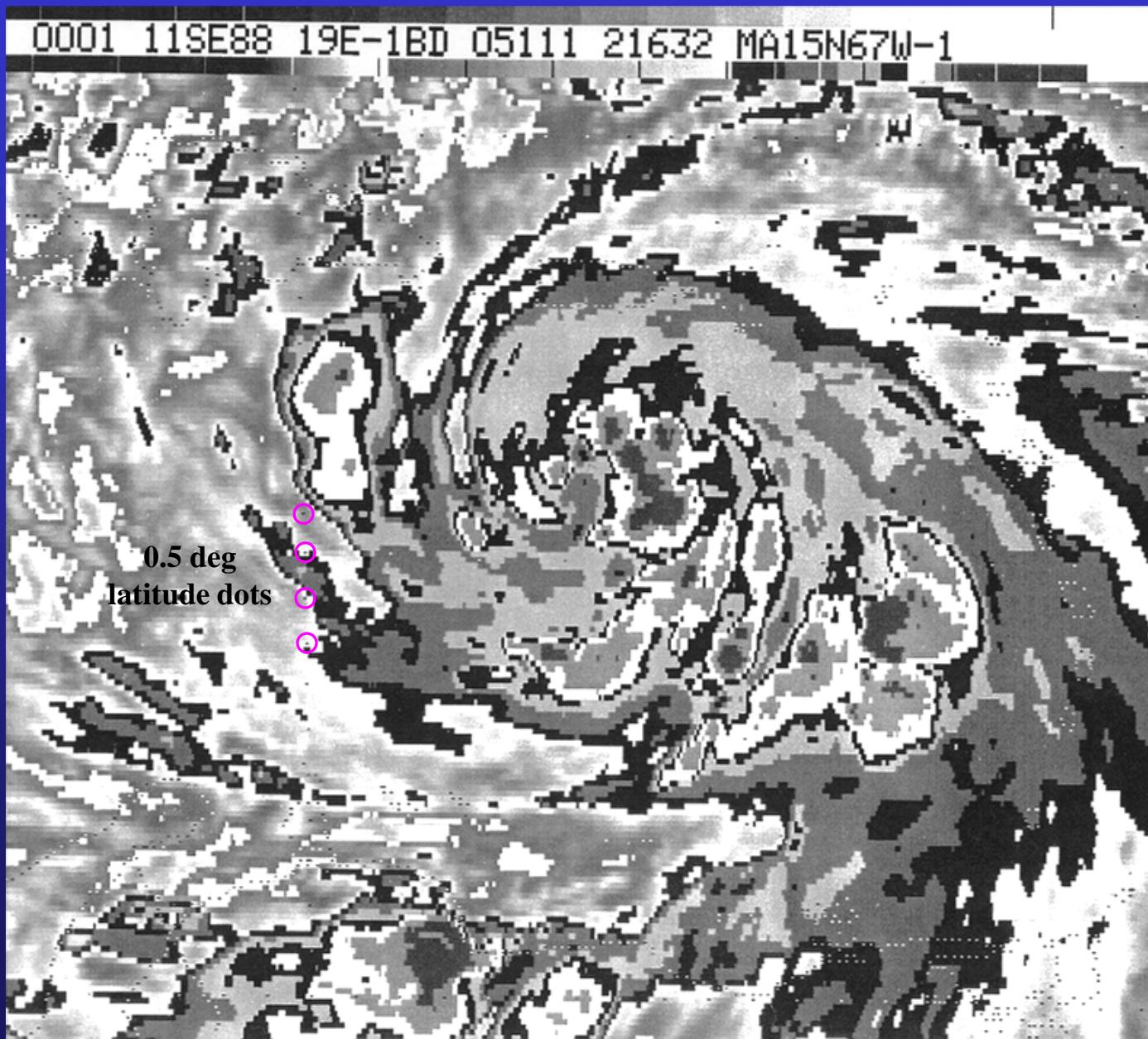
24 hr change?



D

TROPICAL CYCLONE ANALYSIS WORKSHEET

0001 UTC 11 Sep 1988



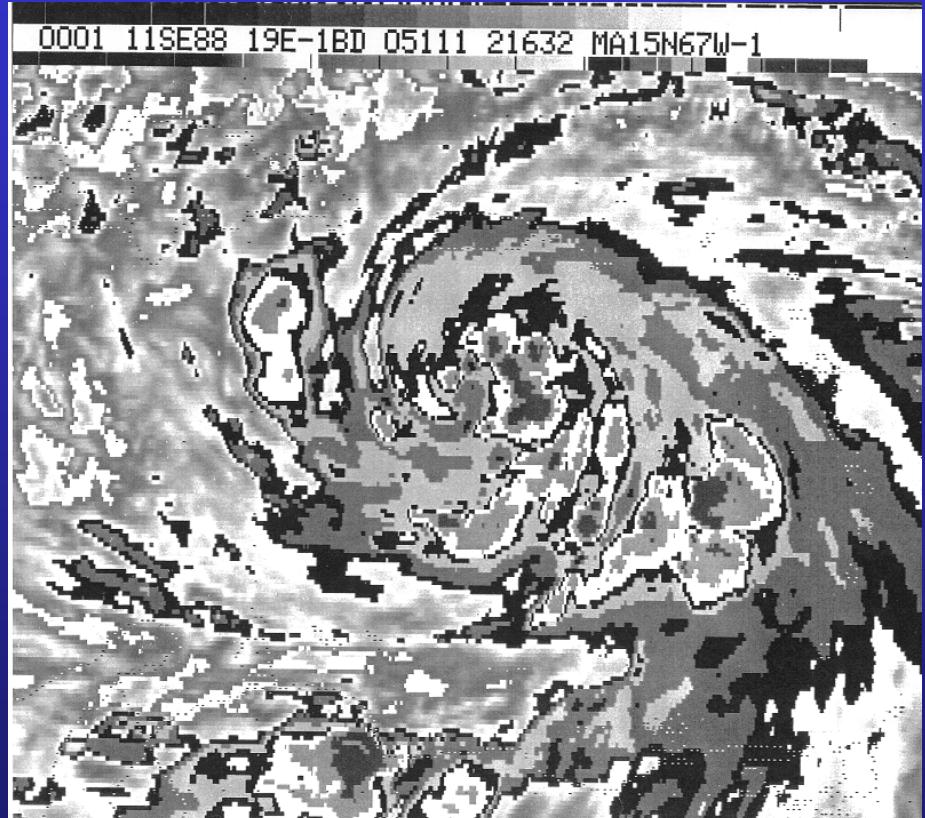
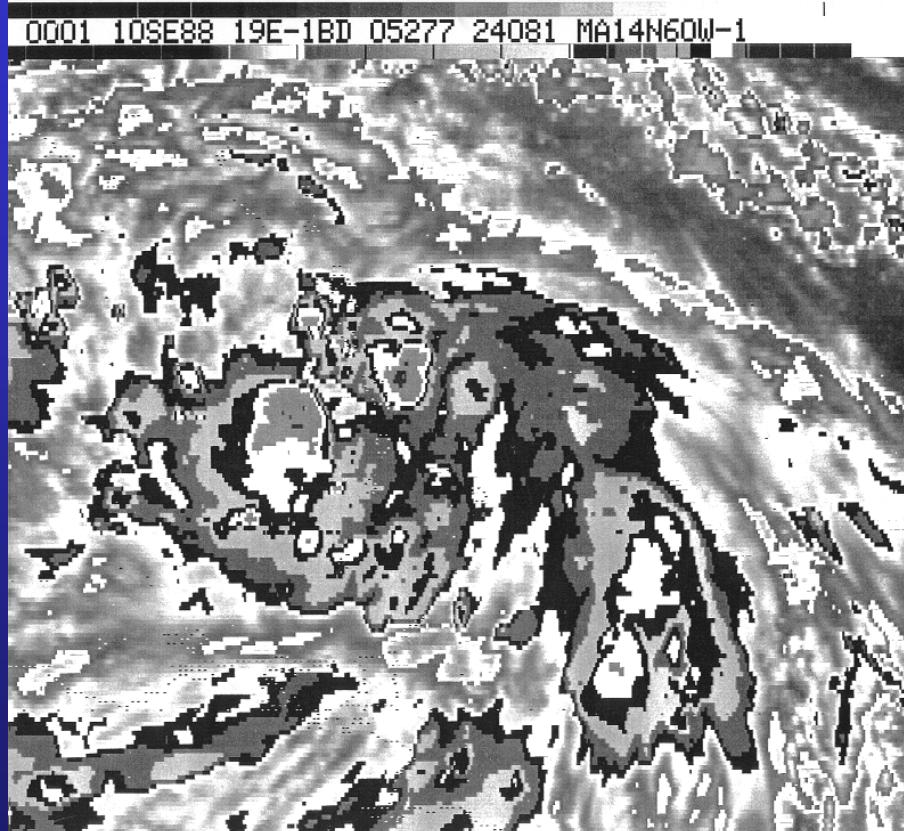
Issues for 0001 UTC 11 Sep 1988

How has the system changed during the last 24 hours? Is it time to change the model development rate?

What cloud pattern(s) can be used to measure this system? What cloud patterns cannot be used?

Is the cloud pattern(s) clear cut? If you tried multiple cloud patterns, do they give the same DT?

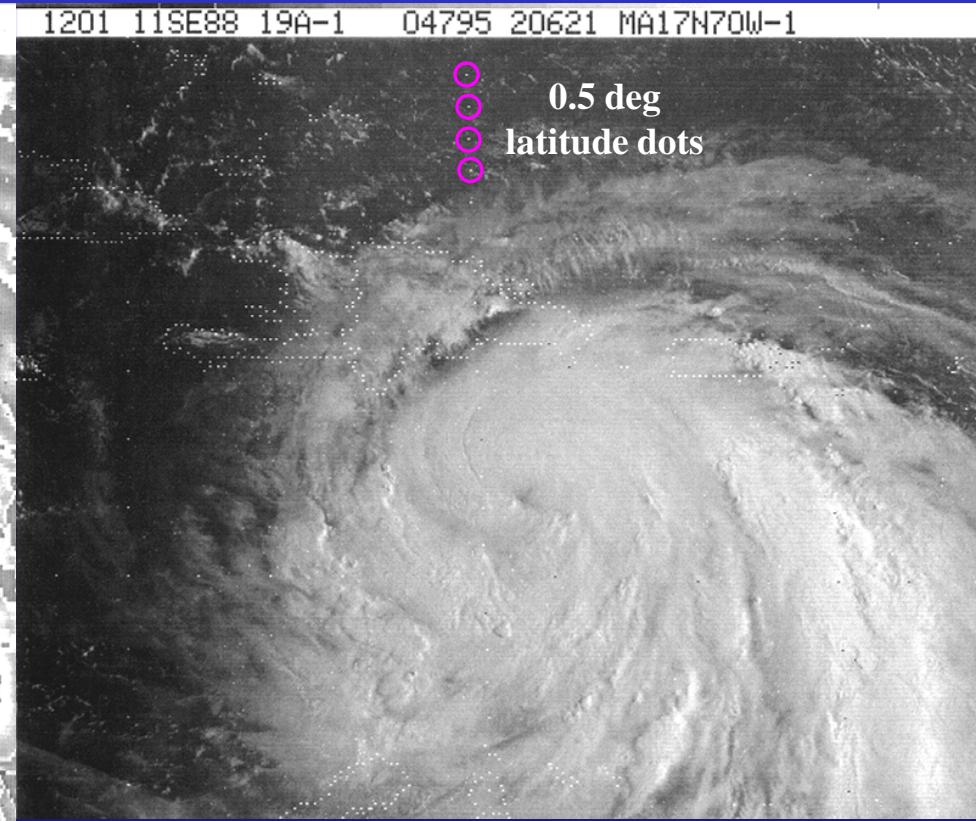
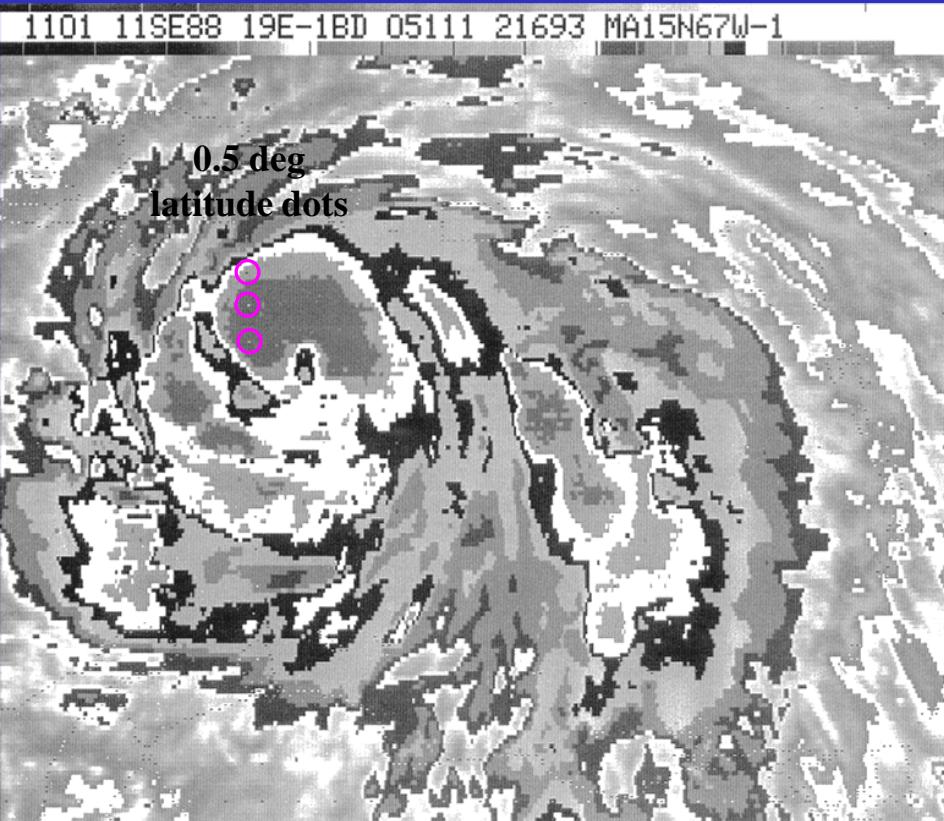
24 hr change?



D

TROPICAL CYCLONE ANALYSIS WORKSHEET

1101/1201 UTC 11 Sep 1988



0.5 deg
latitude dots

Issues for 1101/1201 UTC

11 Sep 1988

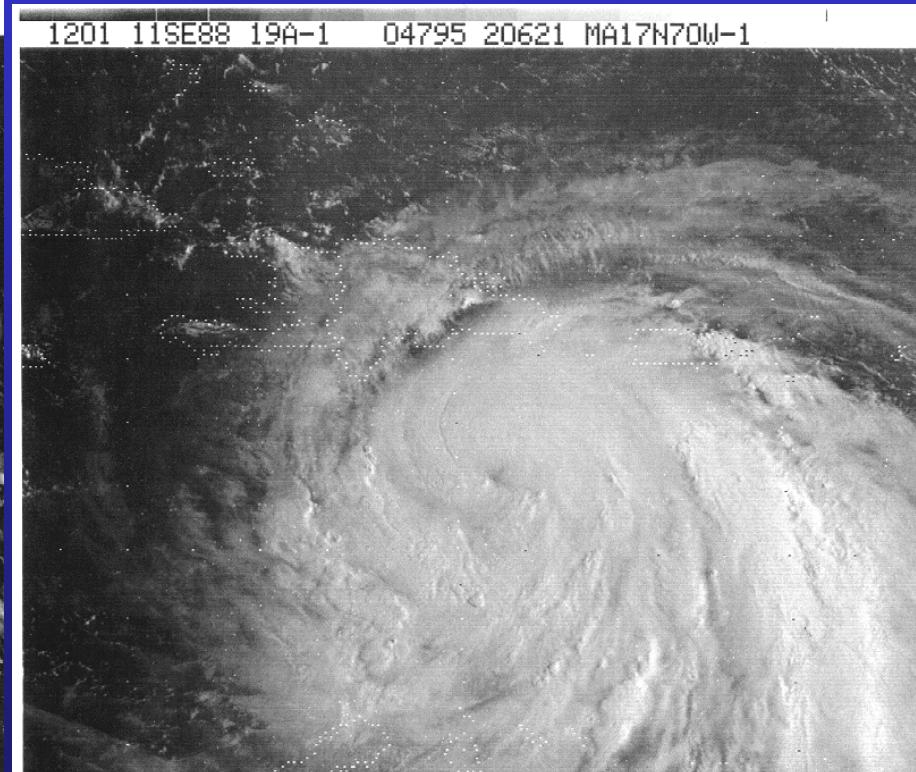
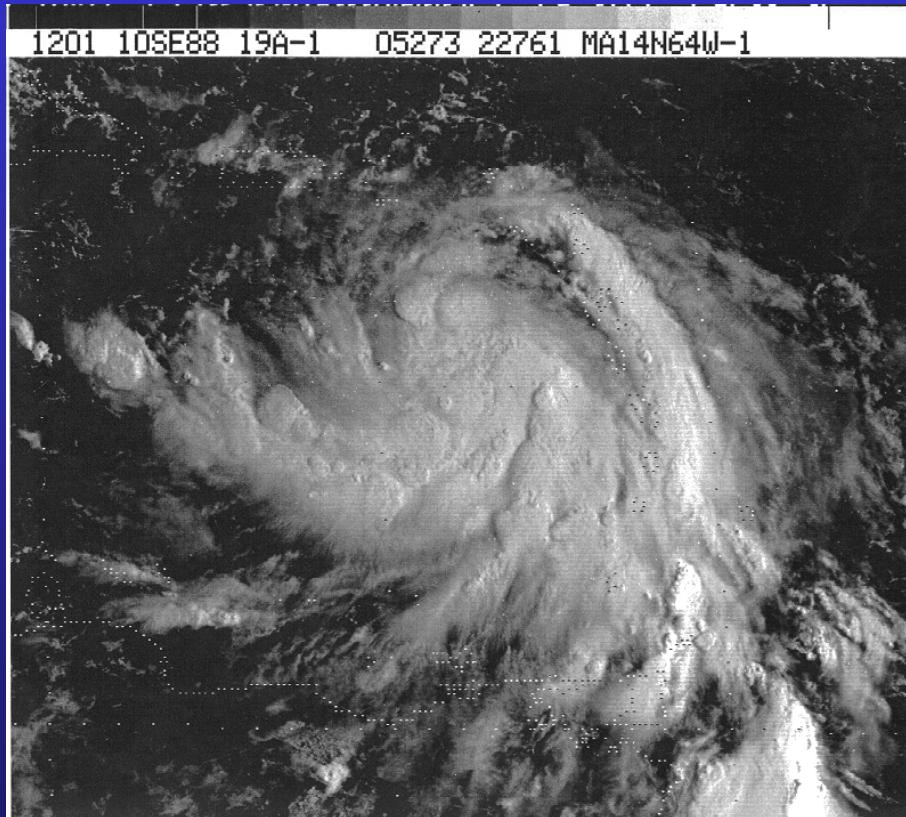
How has the system changed during the last 24 hours? Is it time to change the model development rate?

What cloud patterns can be used to measure this system? What cloud pattern might be best?

If you tried multiple cloud patterns, do they give the same DT?

Beware constraints?

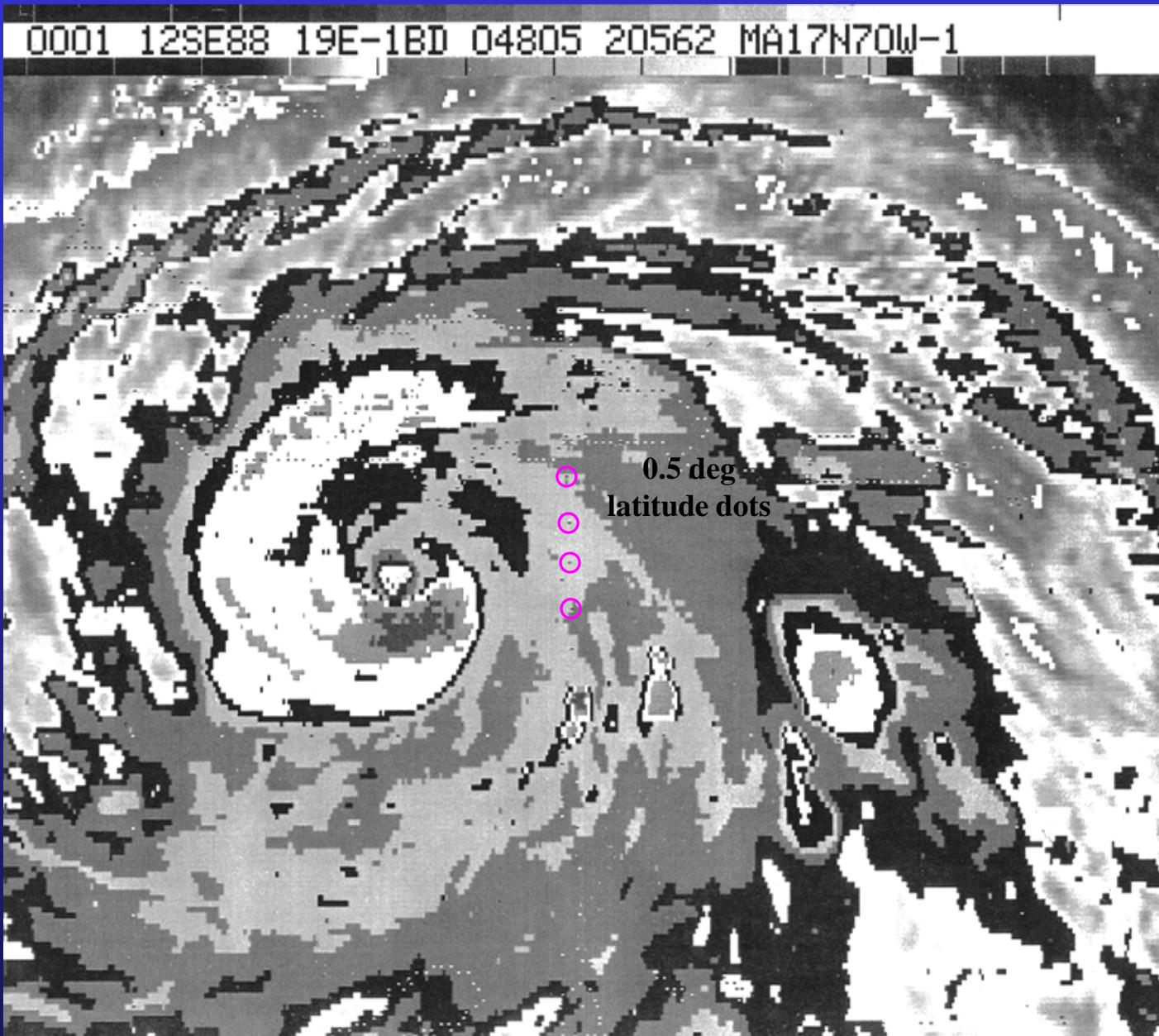
24 hr change?



D

TROPICAL CYCLONE ANALYSIS WORKSHEET

0001 UTC 12 Sep 1988



Issues for 0001 UTC 12 Sep 1988

How has the system changed during the last 24 hours? Do we need to change the model development rate?

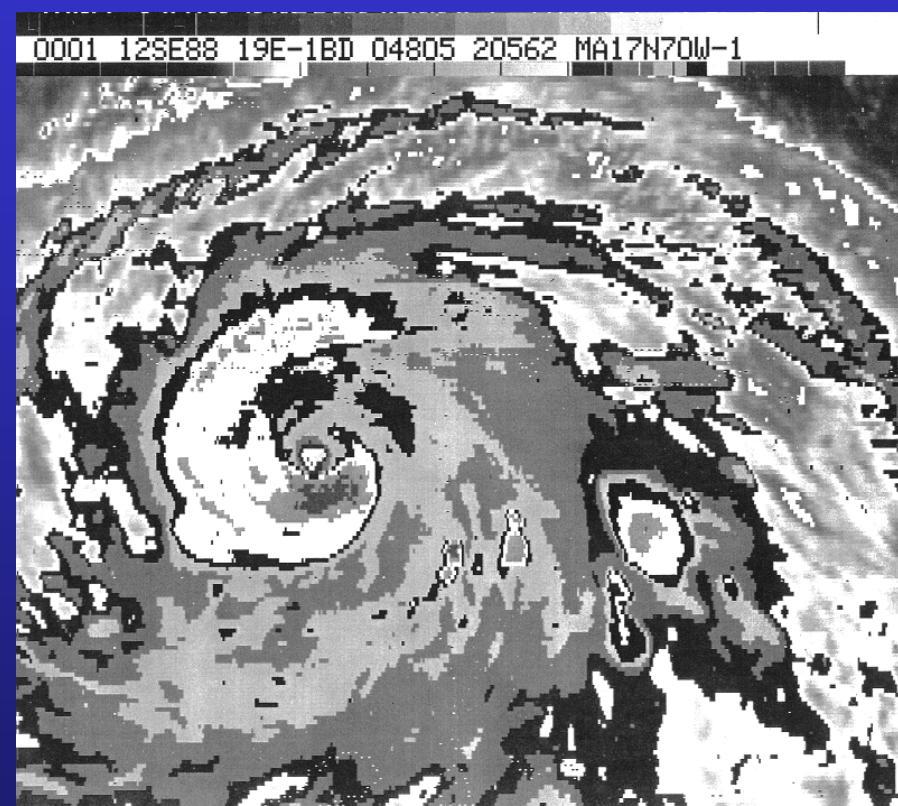
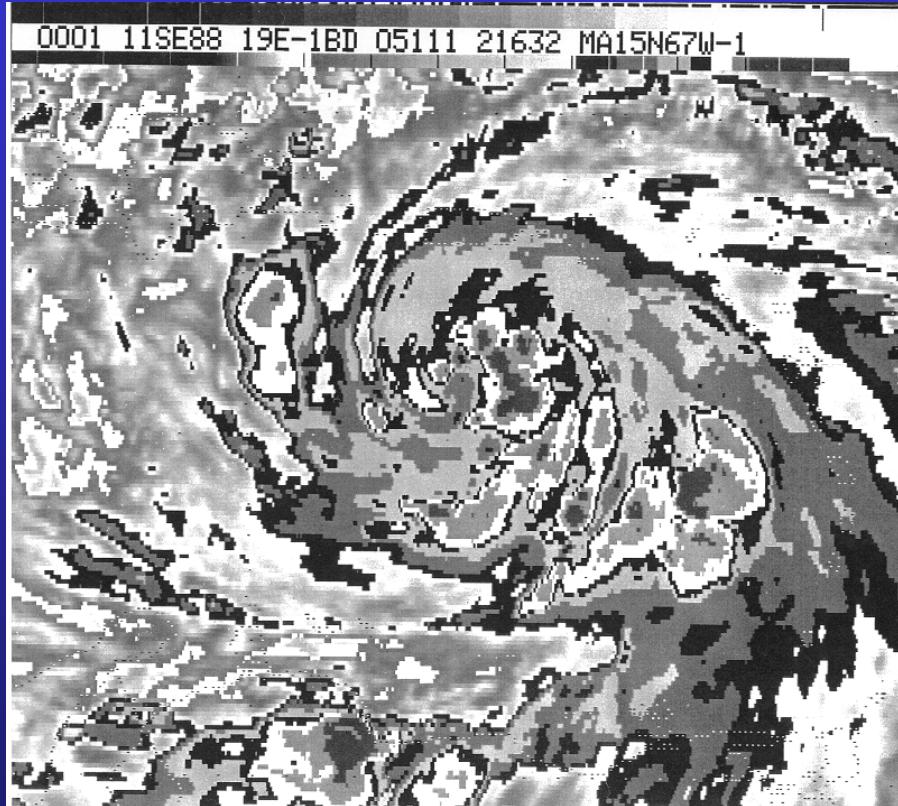
What cloud pattern is best to measure this system?

Is there a need for infrared banding?

Which T-number should be the FT?

Beware constraints?

24 hr change?

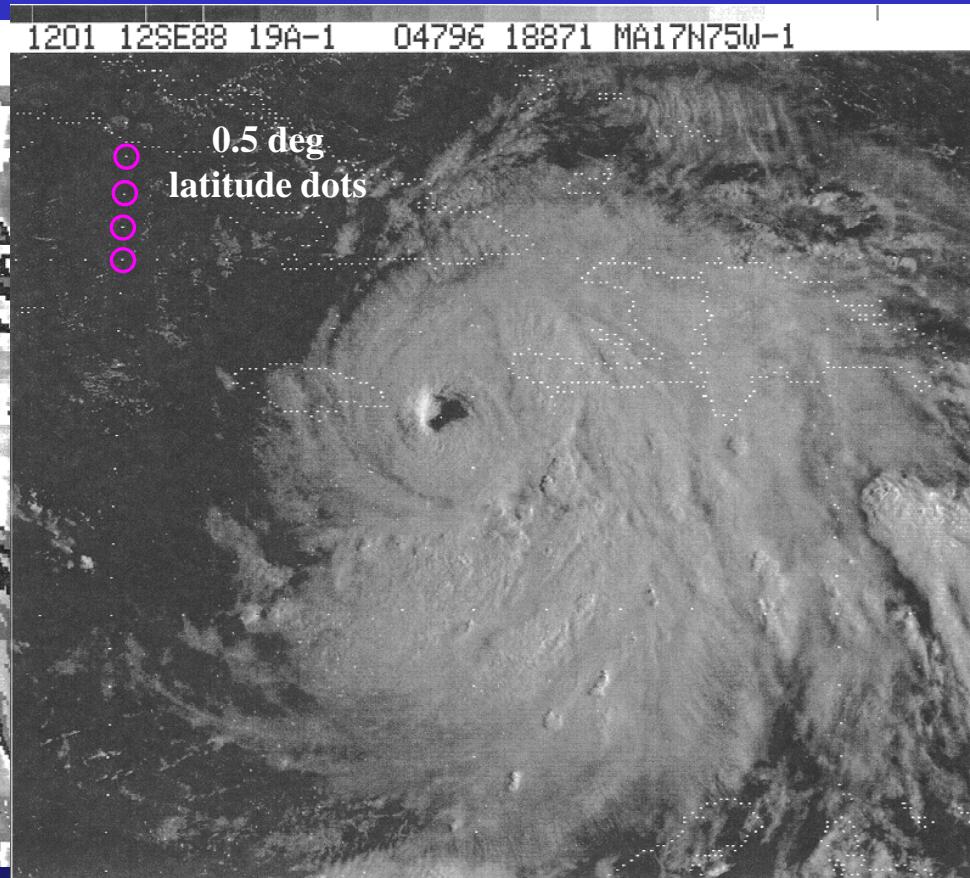
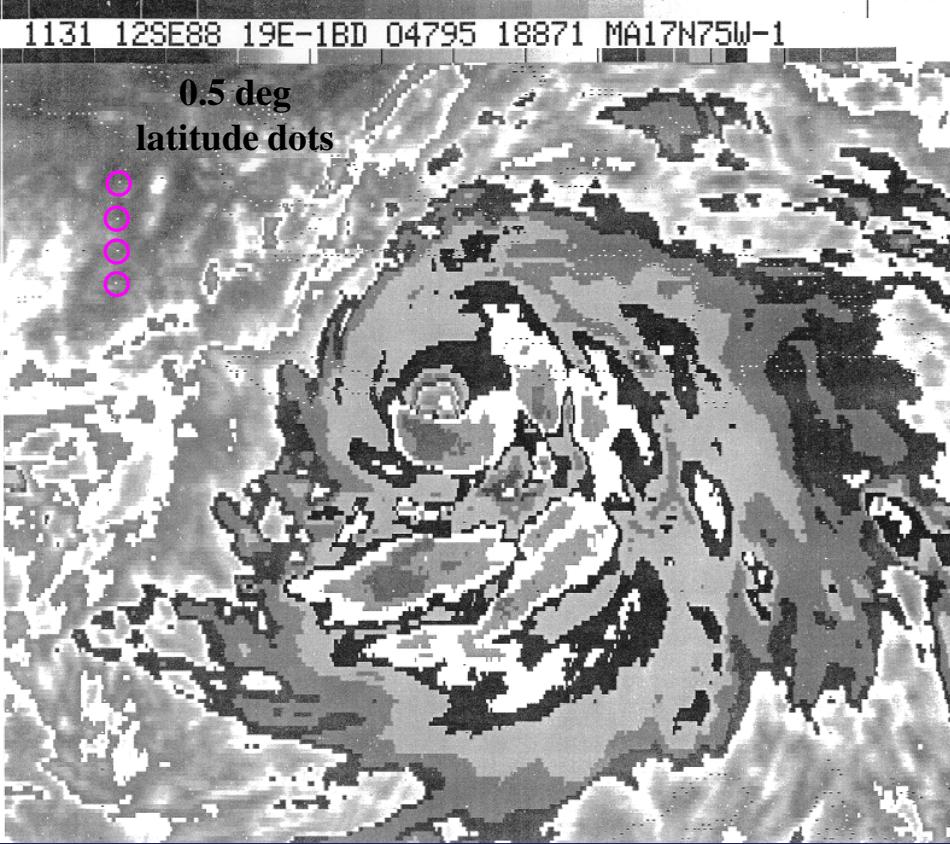


D+

TROPICAL CYCLONE ANALYSIS WORKSHEET

From Vernon F. Dvorak May 1982		T-Number Estimates from Measurements for Data-T (DT) Computation												T-Number Estimates from Model and DT Constraints												
STEP:	1.0	2A, B				2C			2D	2E				3	4	5	6	7, 8	9	10						
Description	Location	Curved Band or Shear				Eye Pattern		Eye # + Eye Adj = Central Feature (CF)	CDO	Embedded Center				CCC	Trend	MET	PAT	FT	CI	24-hour forecast						
Rules:	Locate cloud system center (CSC) at focal point of cloud curvature	Use spiral arc length (tenths) or shear distance (degrees latitude)				(VIS) Use embedded distance (deg. Latitude)	(EIR) Use surrounding temperature (shade on BD curve)	From the VIS and EIR tables and rules	(VIS) Size of Central Dense Overcast (deg. Latitude)	(EIR) Embedded temperature (shade on BD curve)	Data T-Number Computation CF + Banding Feature (BF) = DT			Use rules	24-hr change	From 24-hr old FT and Step 4 trend	From pictographs on the flowcharts	Use rules	Use rules	Adjust model forecast if necessary						
Date/Time (UTC)	Lat. ($^{\circ}$ N)	Lon. ($^{\circ}$ W)	DT1.5 ± 0.5	DT2.5	DT3.0	DT3.5	DT4.0	DT4.5			Eye number	Eye adjustment		CF	BF	DT	Central Cold Cover	D-Developing W- Weakening S- Steady/Same	Model Expected T-Number	Pattern T-Number	Final T-Number	Current Intensity Number	List Rule Used	Forecast Intensity Number	Analyst Initials	
08/1301			0.4													2.5		D	1.0	2.0	1.5	1.5	P	2.5	JLB	
08/2301			NO DT	-	USE RULES											N/A		D	1.5	1.5	1.5	1.5	P	2.5	JLB	
09/1201			0.8°													2.0		D	2.5	2.0	2.0	2.0	P	2.5	JLB	
10/0001			0.65													3.0		D	2.5	3.0	3.0	3.0	P	4.5	JLB	
10/1201			0.65													3.0		D	3.0	3.0	3.0	3.0	P	4.0	JLB	
10/1201											IRREG	1.5°		2.5+	0.5	3.0+										
11/0001			1.20													4.0		D	3.5	4.5	4.0	4.0	P	5.0	JLB	
11/0001				DG	EYE IN	MG	4.5	-0.5							4.0	0.0	4.0									
11/1101				LG	EYE IN	LG/W	5.0+	0.0							5.0+	0.0	5.0+		D	4.0	6.0	4.5	4.5	C	6.0	JLB
11/1101															LG	4.5+	0.0	4.5+								
11/1201				0.5°			4.0	-0.5							3.5	1.0+	4.5+		D	4.0	5.0	4.5+	4.5+	C	6.0	JLB
11/1201			1.5														4.5									
12/0001			OW	EYE IN	LG	5.0	0.0								5.0	0.0	5.0		D+	5.5	5.5	5.0	5.0	P	6.0	JLB

1131/1201 UTC 12 Sep 1988



Issues for 1131/1201 UTC

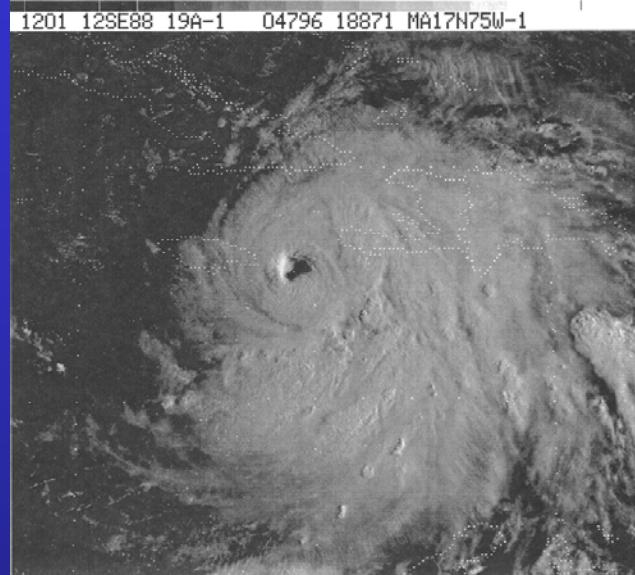
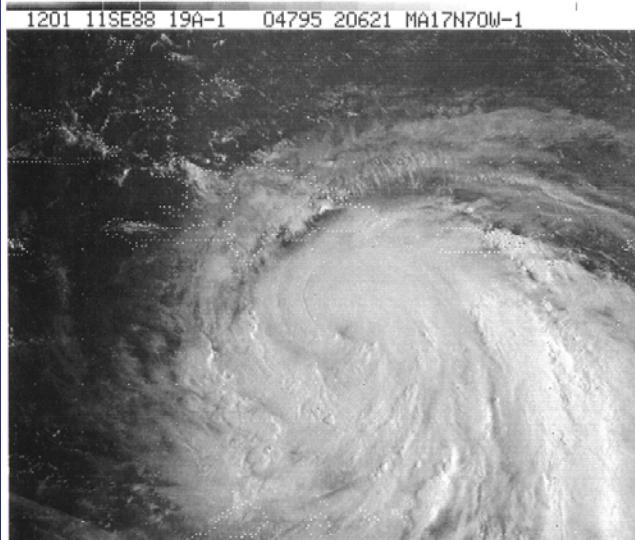
12 Sep 1988

How has the system changed during the last 24 hours? Is it time to change the model development rate?

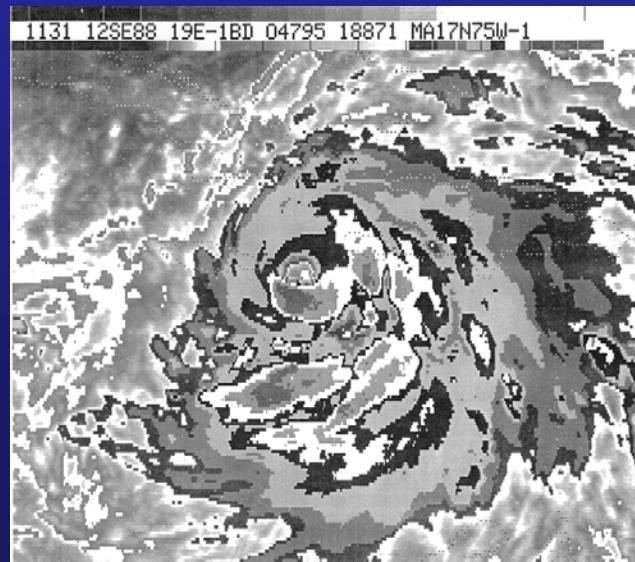
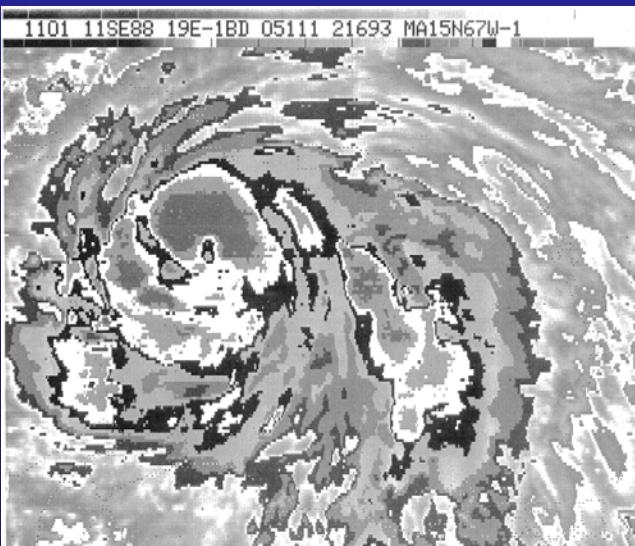
Is there anything unusual about the eye number and eye adjustment? How about the eye size?

Beware constraints?

24 hr change?

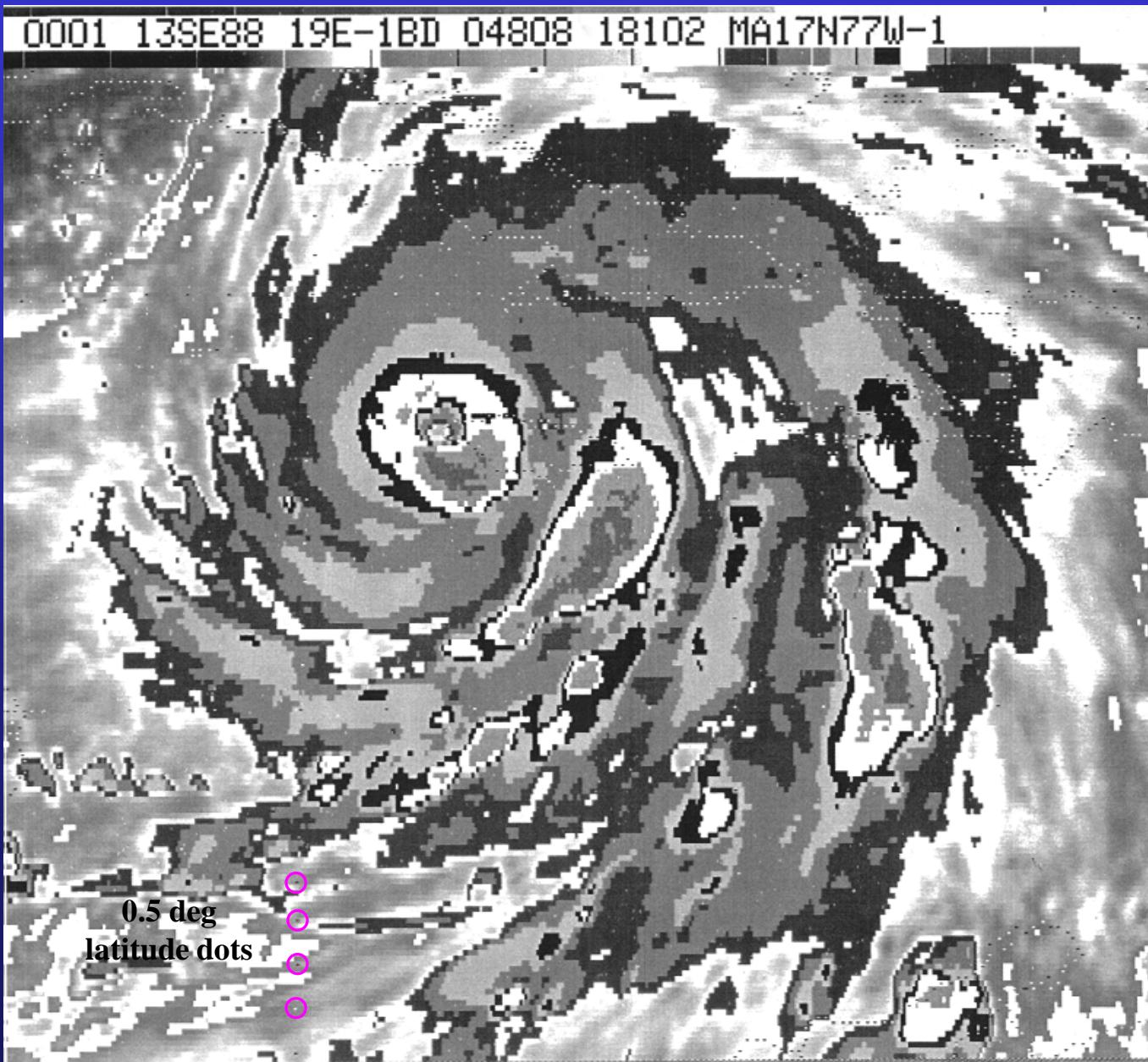


D+



TROPICAL CYCLONE ANALYSIS WORKSHEET

0001 UTC 13 Sep 1988



Issues for 0001 UTC 13 Sep 1988

How has the system changed during the last 24 hours? Any change in development rate?

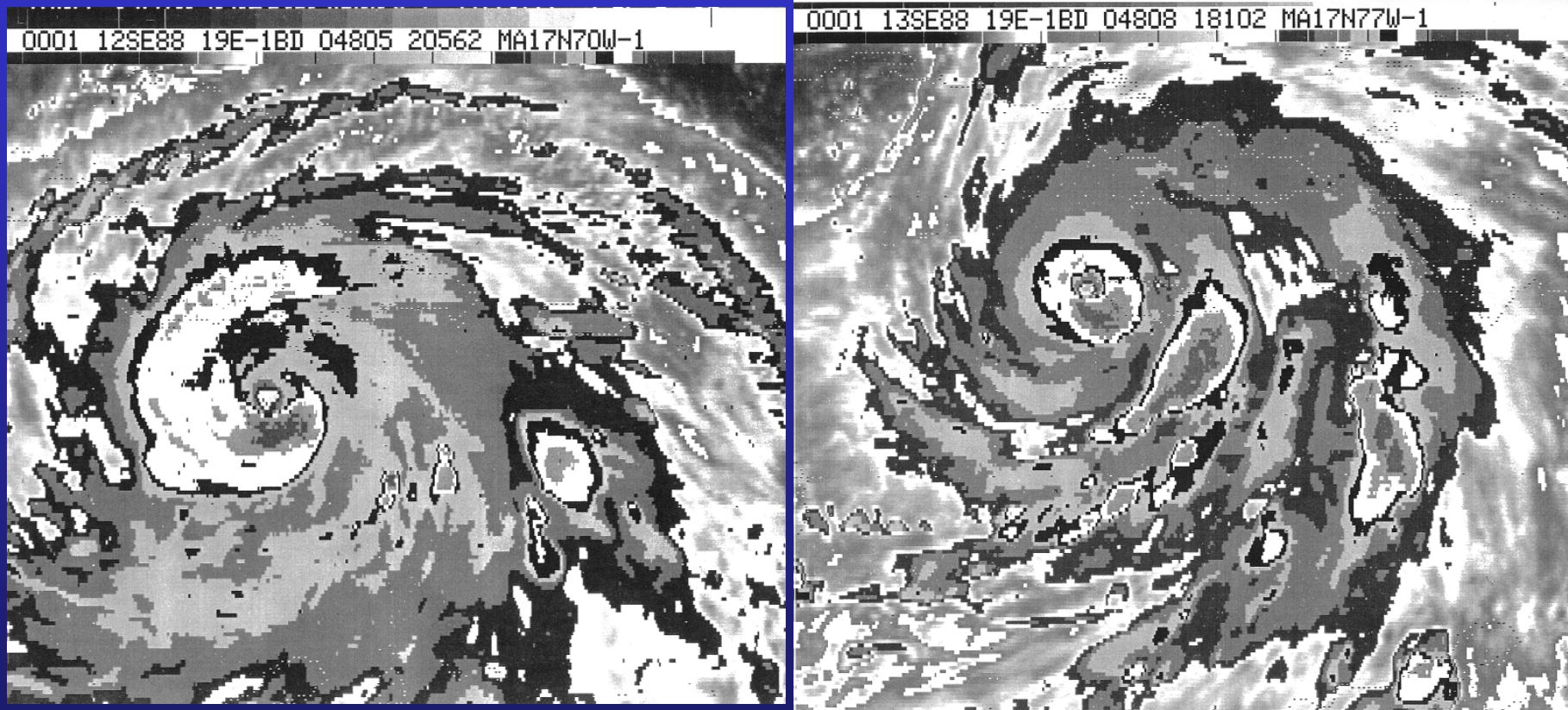
The system has passed over Jamaica during the last 12 hours. Should that affect the analysis?

Is there anything unusual about the eye number and eye adjustment?

Is there a need for infrared banding?

What about the PT?

24 hr change?

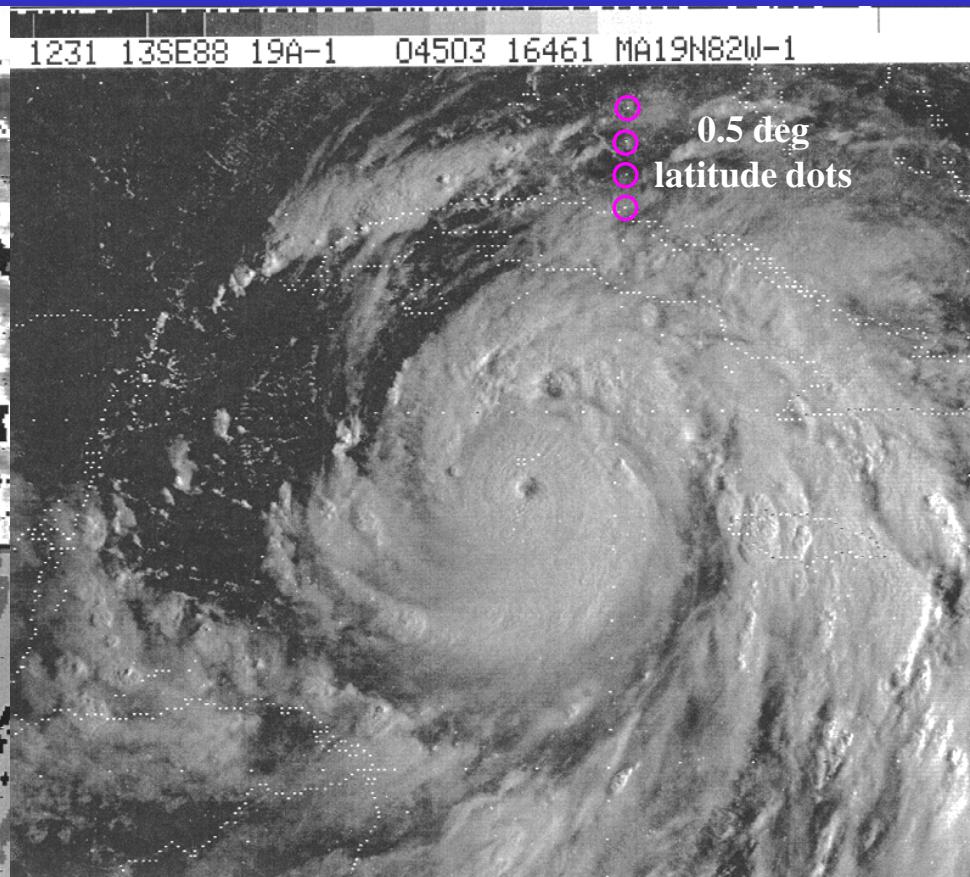
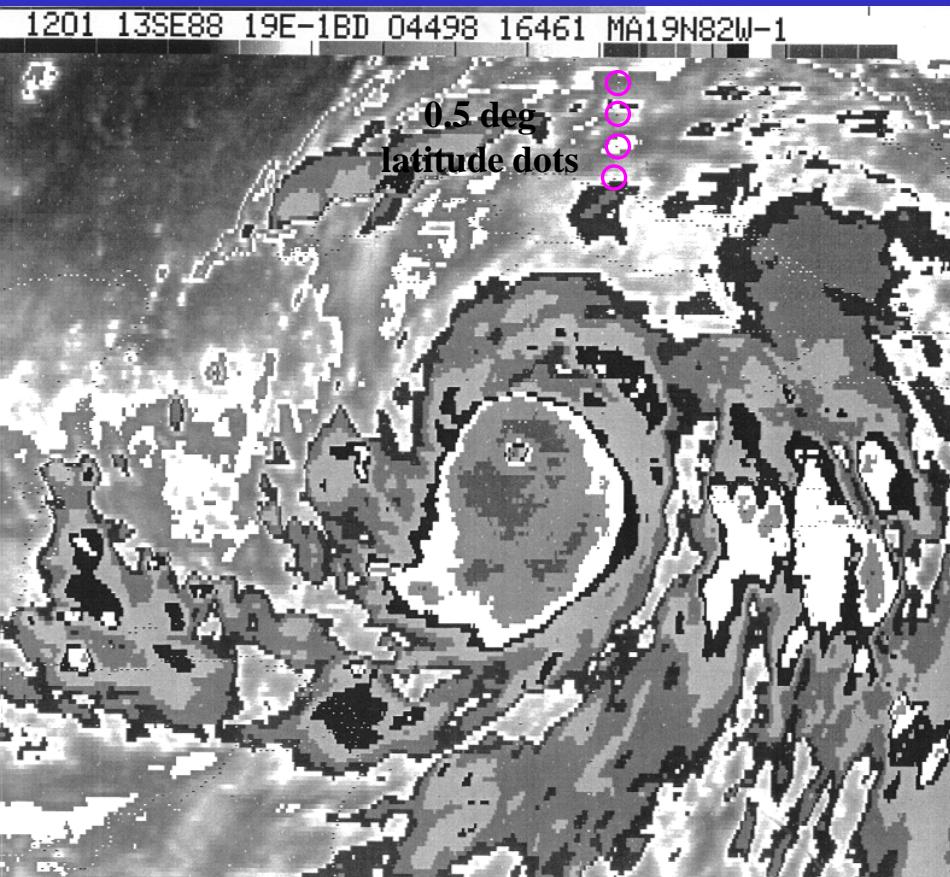


D+

TROPICAL CYCLONE ANALYSIS WORKSHEET

From Vernon F. Dvorak May 1982		T-Number Estimates from Measurements for Data-T (DT) Computation												T-Number Estimates from Model and DT Constraints										
STEP:	1.0	2A, B				2C			2D	2E				3	4	5	6	7, 8	9	10				
Description	Location	Curved Band or Shear				Eye Pattern		Eye # + Eye Adj = Central Feature (CF)		CDO	Embedded Center				CCC	Trend	MET	PAT	FT	CI	24-hour forecast			
Rules:	Locate cloud system center (CSC) at focal point of cloud curvature	Use spiral arc length (tenths) or shear distance (degrees latitude)				(VIS) Use embedded distance (deg. Latitude)	(EIR) Use surrounding temperature (shade on BD curve)	From the VIS and EIR tables and rules		(VIS) Size of Central Dense Overcast (deg. Latitude)	(EIR) Embedded temperature (shade on BD curve)	Data T-Number Computation CF + Banding Feature (BF) = DT			Use rules	24-hr change	From 24-hr old FT and Step 4 trend	From pictographs on the flowcharts	Use rules	Use rules	Adjust model forecast if necessary			
Date/Time (UTC)	Lat. ($^{\circ}$ N)	Lon. ($^{\circ}$ W)	DT1.5 ±0.5	DT2.5	DT3.0	DT3.5	DT4.0	DT4.5				CF	BF	DT	Central Cold Cover	D-Developing W- Weakening S- Steady/Same	Model Expected T-Number	Pattern T-Number	Final T-Number	Current Intensity Number	List Rule Used	Forecast Intensity Number	Analyst Initials	
08/1301			0.4											2.5		D	1.0	2.0	1.5	1.5	P	2.5	JLB	
08/2301			NO DT	-	USE RULES									N/A		D	1.5	1.5	1.5	1.5	P	2.5	JLB	
09/1201			0.8°											2.0		D	2.5	2.0	2.0	2.0	P	2.5	JLB	
10/0001			0.65											3.0		D	2.5	3.0	3.0	3.0	P	4.5	JLB	
10/1201			0.65											3.0		D	3.0	3.0	3.0	3.0	P	4.0	JLB	
10/1201														IRREG 1.5°		2.5+ 0.5 3.0+								
11/0001			1.20														D	3.5	4.5	4.0	4.0	P	5.0	JLB
11/0001				DG	EYE IN	MG	4.5	-0.5						4.0 0.0 4.0										
11/1101				LG	EYE IN	LG/W	5.0+	0.0						5.0+ 0.0 5.0+		D	4.0	6.0	4.5	4.5	C	6.0	JLB	
11/1101															LG	4.5+ 0.0 4.5+								
11/1201				0.5°			4.0	-0.5						3.5 1.0+ 4.5+		D	4.0	5.0	4.5+	4.5+	C	6.0	JLB	
11/1201				1.5														4.5						
12/0001			OW	EYE IN	LG	5.0	0.0							5.0 0.0 5.0		D+	5.5	5.5	5.0	5.0	P	6.0	JLB	
12/1131				WMG	EYE IN	LG/B	5.0	1.0						6.0 0.0 6.0		D+	6.0	5.5	6.0	6.0	C	7.5	JLB	
12/1201					0.9°		5.5	0.0						5.5 1.0 6.5		D+	6.0	5.5	6.0	6.0	C	7.5	JLB	
13/0001			OW	EYE IN	B/W	5.5+	0.5							6.0+ 0.5 6.5+		D+	6.5	6.5	6.5+	6.5+	C	8.0	JLB	

1201/1231 UTC 13 Sep 1988



Issues for 1201/1231 UTC 13 Sep 1988

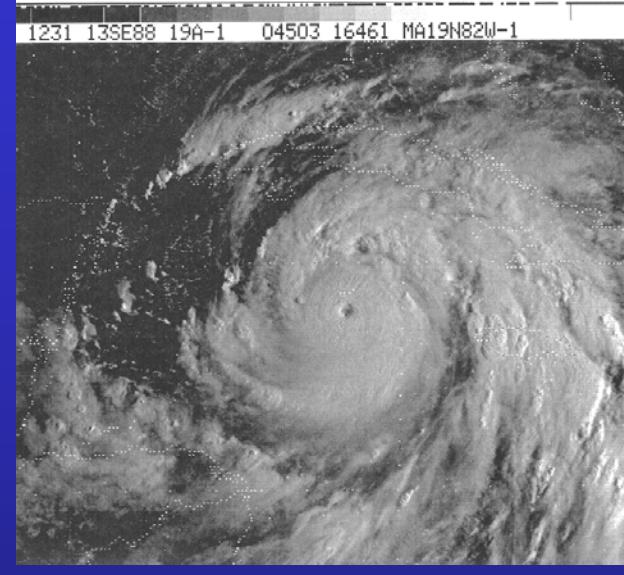
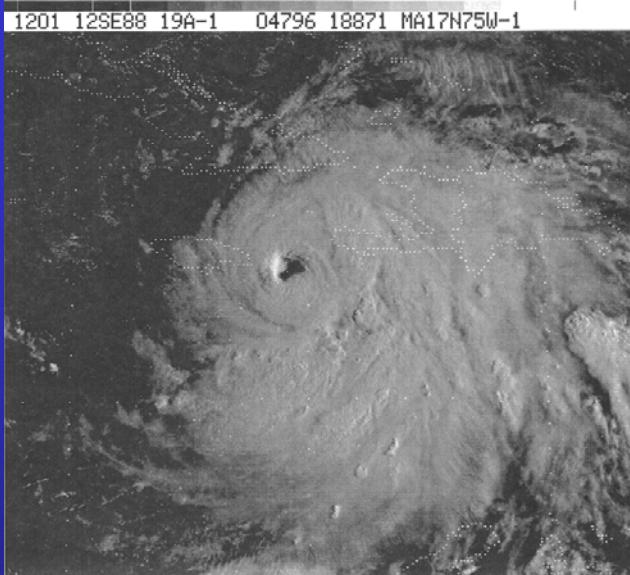
How has the system changed during the last 24 hours? Any change in development rate?

Is there anything unusual about the eye number and eye adjustment? How about the eye size? Can we see to the bottom of the eye?

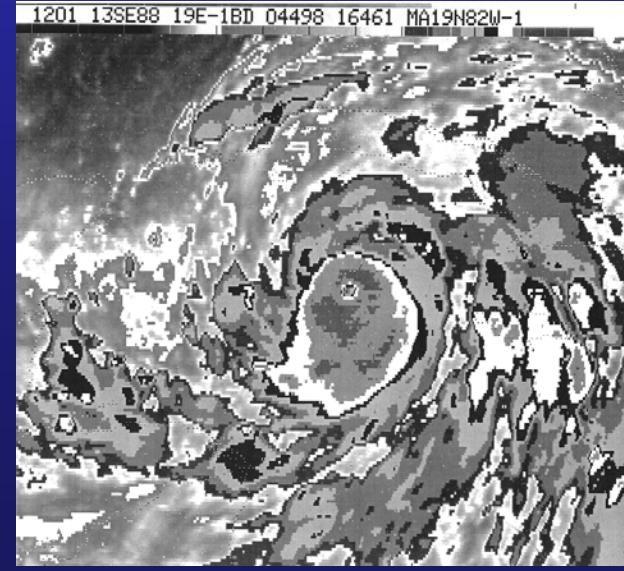
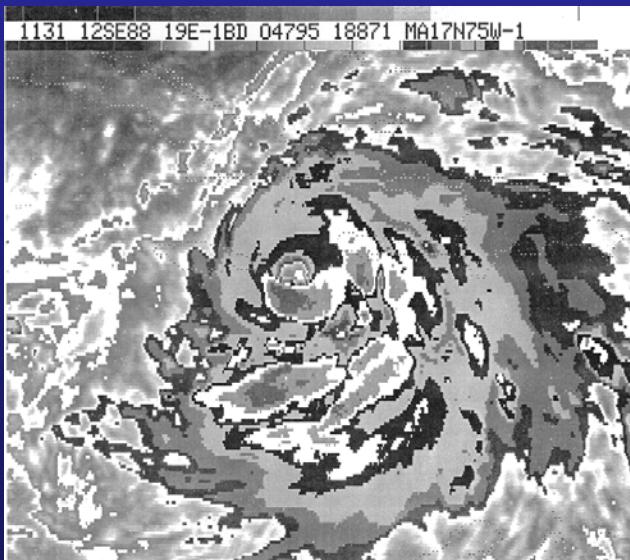
Is there a need for infrared banding?

What about the PT?

24 hr change?



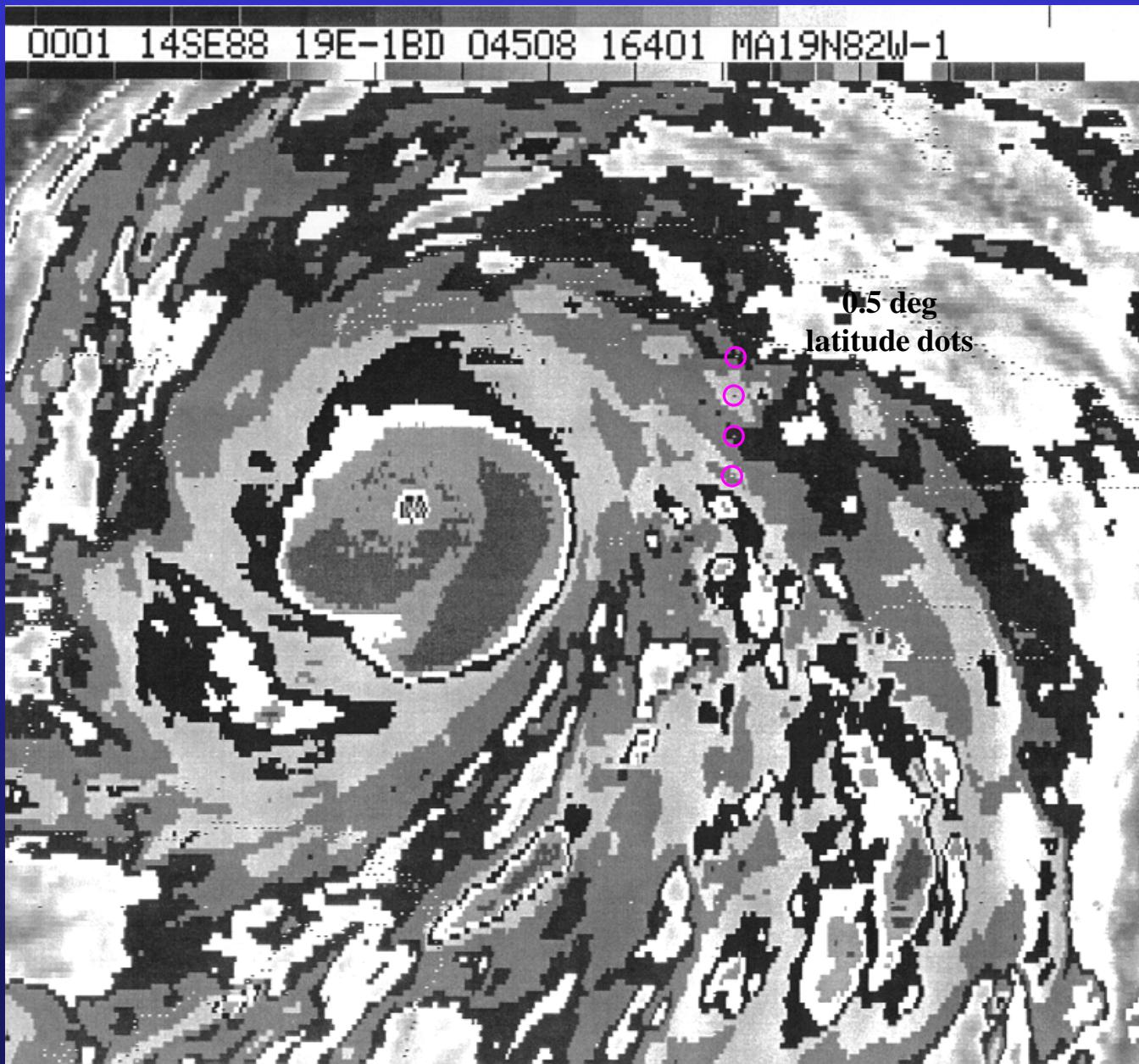
D+



TROPICAL CYCLONE ANALYSIS WORKSHEET

From Vernon F. Dvorak May 1982		T-Number Estimates from Measurements for Data-T (DT) Computation												T-Number Estimates from Model and DT Constraints																	
STEP:	1.0	2A, B				2C			2D	2E				3	4	5	6	7, 8	9	10											
Description	Location	Curved Band or Shear				Eye Pattern		Eye # + Eye Adj = Central Feature (CF)	CDO	Embedded Center				CCC	Trend	MET	PAT	FT	CI	24-hour forecast											
Rules:	Locate cloud system center (CSC) at focal point of cloud curvature	Use spiral arc length (tenths) or shear distance (degrees latitude)				(VIS) Use embedded distance (deg. Latitude)	(EIR) Use surrounding temperature (shade on BD curve)	From the VIS and EIR tables and rules	(VIS) Size of Central Dense Overcast (deg. latitude)	(EIR) Embedded Temperature (shade on BD curve)	Data T-Number Computation CF + Banding Feature (BF) = DT			Use rules	24-hr change	From 24-hr old FT and Step 4 trend	From pictographs on the flowcharts	Use rules	Use rules	Adjust model forecast if necessary											
Date/Time (UTC)	Lat. (°N)	Lon. (°W)	DT1.5 ±0.5	DT2.5	DT3.0	DT3.5	DT4.0	DT4.5			Eye number	Eye adjustment			CF	BF	DT	Central Cold Cover	Model Expected T-Number	Pattern T-Number	Final T-Number	Current Intensity Number	List Rule Used	Forecast Intensity Number	Analyst Initials						
08/1301			0.4													2.5		D	1.0	2.0	1.5	1.5	P	2.5	JLB						
08/2301			NO	DT	-	USE	RULES									N/A		D	1.5	1.5	1.5	1.5	P	2.5	JLB						
09/1201			0.8°													2.0		D	2.5	2.0	2.0	2.0	P	2.5	JLB						
10/0001				0.65												3.0		D	2.5	3.0	3.0	3.0	P	4.5	JLB						
10/1201				0.65												3.0		D	3.0	3.0	3.0	3.0	P	4.0	JLB						
10/1201											IRREG	1.5°			2.5+	0.5	3.0+														
11/0001																	4.0		D	3.5	4.5	4.0	4.0	P	5.0	JLB					
11/0001											DG	EYE IN	MG	4.5	-0.5		4.0														
11/1101											LG	EYE IN	LG/W	5.0+	0.0			5.0+		D	4.0	6.0	4.5	4.5	C	6.0	JLB				
11/1101																LG	4.5+	0.0	4.5+												
11/1201																0.5°	4.0	-0.5		3.5	1.0+	4.5+		D	4.0	5.0	4.5+	C	6.0	JLB	
11/1201																1.5															
12/0001											OW	EYE IN	LG	5.0	0.0			5.0	0.0	5.0		D+	5.5	5.5	5.0	P	6.0	JLB			
12/1131												WMG	EYE IN	LG/B	5.0	1.0			6.0	0.0	6.0		D+	6.0	5.5	6.0	C	7.5	JLB		
12/1201																0.9°	5.5	0.0		5.5	1.0	6.5		D+	6.0	5.5	6.0	C	7.5	JLB	
13/0001											OW	EYE IN	B/W	5.5+	0.5			6.0+	0.5	6.5+		D+	6.5	6.5	6.5+	C	8.0	JLB			
13/1201																0.9°	5.5	0.5***			7.0	0.5	7.5		D+	7.5	7.0	7.5	C	8.0	JLB
13/1231																	5.5	0.5***			6.0	1.5	7.5		D+	7.5	7.0	7.5	C	8.0	JLB

0001 UTC 14 Sep 1988



Issues for 0001 UTC 14 Sep 1988

How has the system changed during the last 24 hours? Any change in development rate?

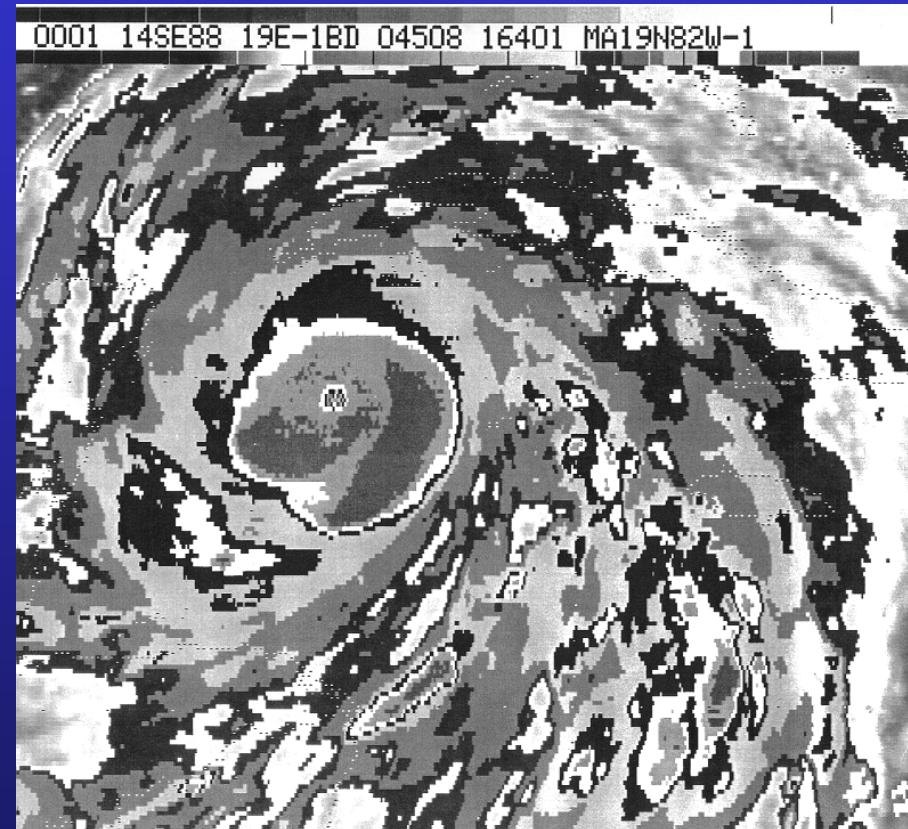
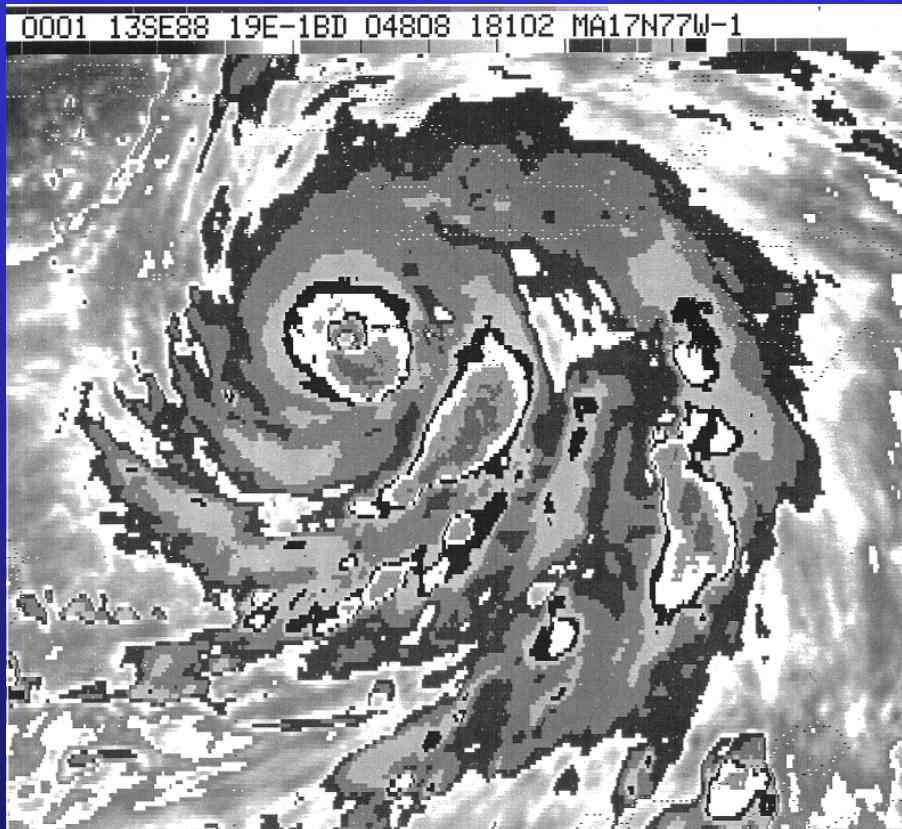
Is there anything unusual about the eye number and eye adjustment? How about the eye size? Can we see to the bottom of the eye?

Is there a need for infrared banding?

What about the PT? The FI?

Assume the eye temperature is Warm Medium Gray (WMG)!

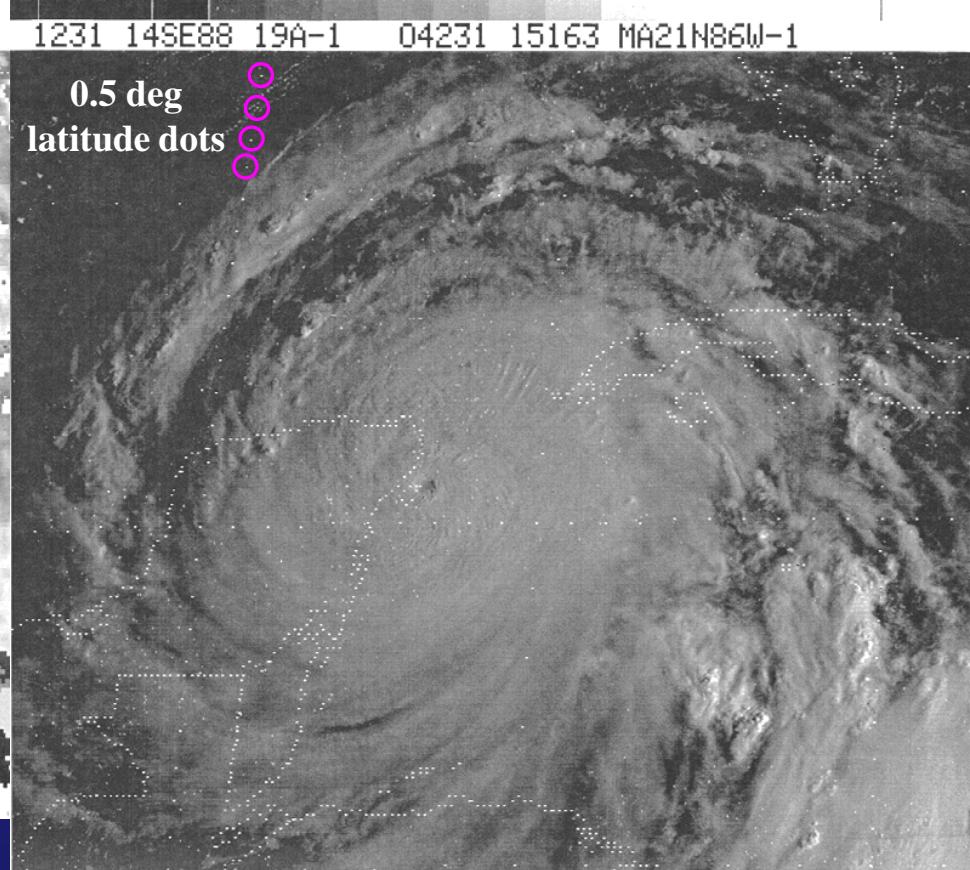
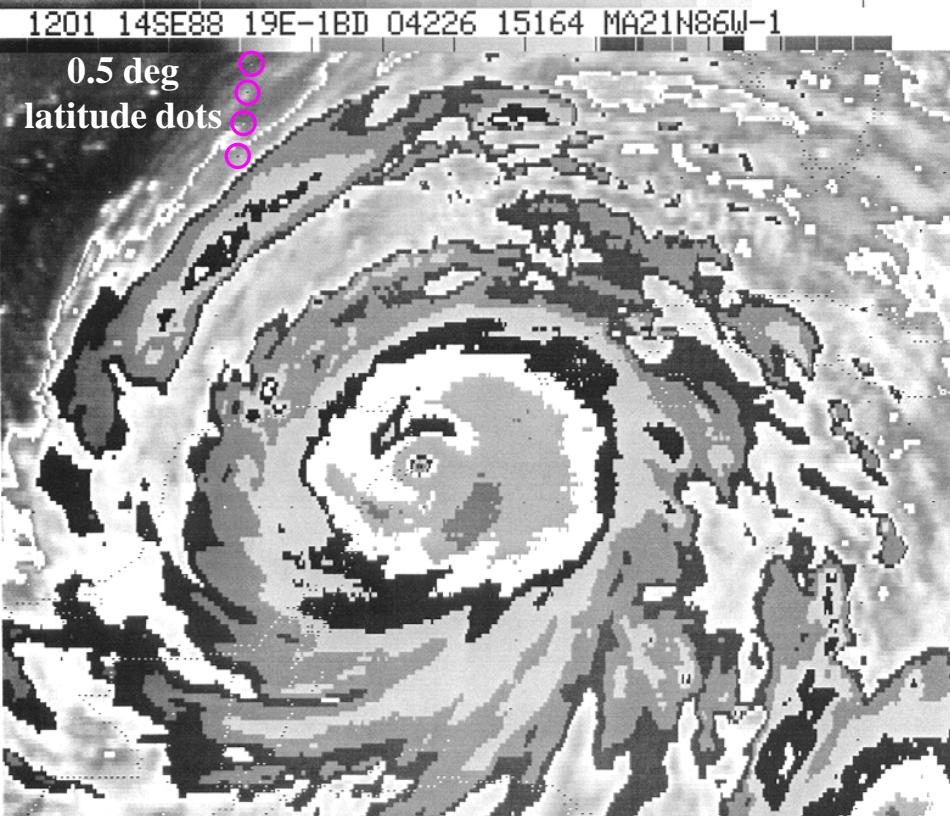
24 hr change?



D+

TROPICAL CYCLONE ANALYSIS WORKSHEET

1201/1231 UTC 14 Sep 1988



Issues for 1201/1231 UTC 14 Sep 1988

Is there any change in development trend?

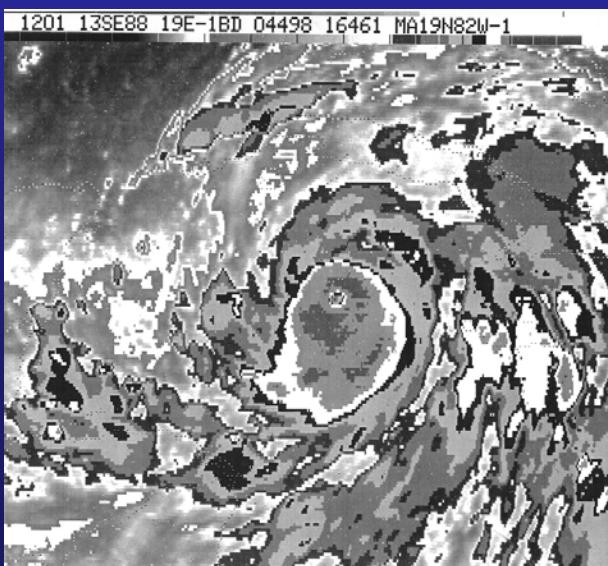
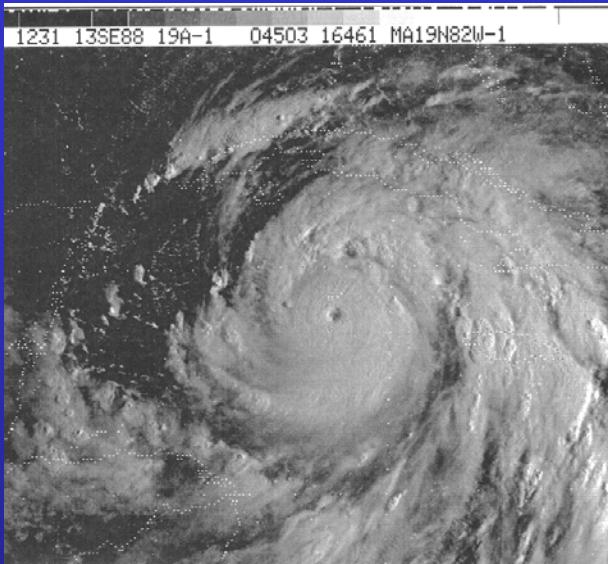
Is there anything unusual about the eye number and eye adjustment? How about the eye size? Can we see to the bottom of the eye?

Can infrared banding be used?

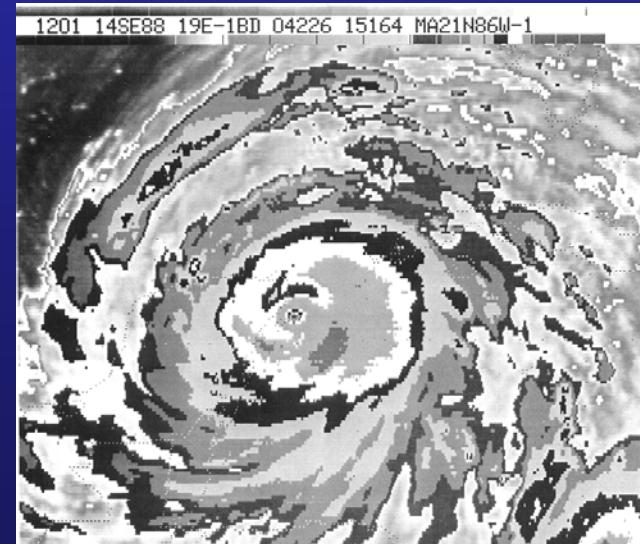
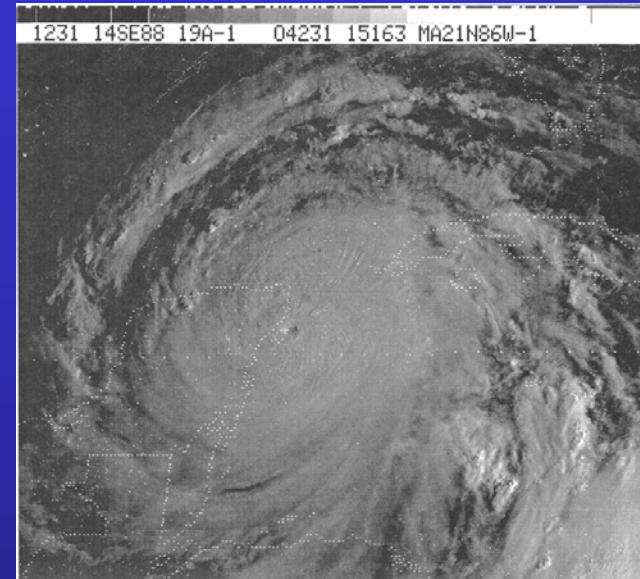
What about the PT? The FI?

What physically might be happening to the storm?

24 hr change?



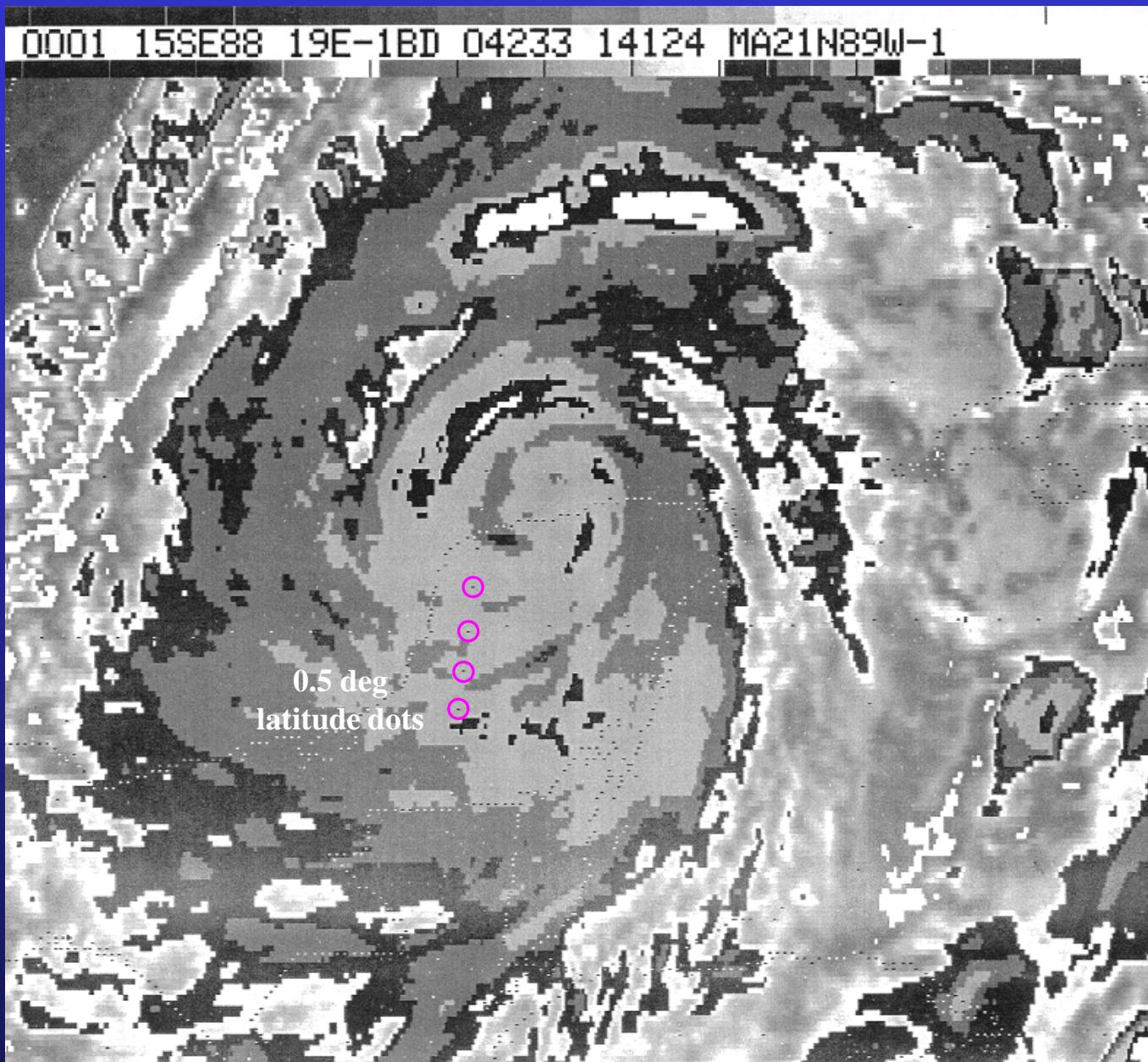
W



TROPICAL CYCLONE ANALYSIS WORKSHEET

From Vernon F. Dvorak May 1982		T-Number Estimates from Measurements for Data-T (DT) Computation												T-Number Estimates from Model and DT Constraints													
STEP:	1.0	2A, B				2C			2D	2E				3	4	5	6	7, 8	9	10							
Description	Location	Curved Band or Shear				Eye Pattern		Eye # + Eye Adj = Central Feature (CF)		CDO	Embedded Center				CCC	Trend	MET	PAT	FT	CI	24-hour forecast						
Rules:	Locate cloud system center (CSC) at focal point of cloud curvature	Use spiral arc length (tenths) or shear distance (degrees latitude)				(VIS) Use embedded distance (deg. Latitude)	(EIR) Use surrounding temperature (shade on BD curve)	From the VIS and EIR tables and rules		(VIS) Size of Central Dense Overcast (deg. Latitude)	(EIR) Embedded temperature (shade on BD curve)	Data T-Number Computation CF + Banding Feature (BF) = DT			Use rules	24-hr change	From 24-hr old FT and Step 4 trend	From pictographs on the flowcharts	Use rules	Use rules	Adjust model forecast if necessary						
Date/Time (UTC)	Lat. ($^{\circ}$ N)	Lon. ($^{\circ}$ W)	DT1.5 ±0.5	DT2.5	DT3.0	DT3.5	DT4.0	DT4.5														Analyst Initials					
08/1301			0.4															2.5	D	1.0	2.0	1.5	1.5	P	2.5	JLB	
08/2301			NO DT	-	USE RULES													N/A	D	1.5	1.5	1.5	1.5	P	2.5	JLB	
09/1201			0.8°															2.0	D	2.5	2.0	2.0	2.0	P	2.5	JLB	
10/0001			0.65															3.0	D	2.5	3.0	3.0	3.0	P	4.5	JLB	
10/1201			0.65															3.0	D	3.0	3.0	3.0	3.0	P	4.0	JLB	
10/1201																		IRREG 1.5°	2.5+	0.5	3.0+						
11/0001			1.20																4.0	D	3.5	4.5	4.0	4.0	P	5.0	JLB
11/0001				DG	EYE IN	MG	4.5	-0.5										4.0	0.0	4.0							
11/1101				LG	EYE IN	LG/W	5.0+	0.0										5.0+	0.0	5.0+	D	4.0	6.0	4.5	C 6.0	JLB	
11/1101																		LG	4.5+	0.0	4.5+						
11/1201				0.5°			4.0	-0.5										3.5	1.0+	4.5+	D	4.0	5.0	4.5+	C 6.0	JLB	
11/1201				1.5															4.5								
12/0001			OW	EYE IN	LG	5.0	0.0											5.0	0.0	5.0	D+	5.5	5.5	5.0	P 6.0	JLB	
12/1131				WMG	EYE IN	LG/B	5.0	1.0										6.0	0.0	6.0	D+	6.0	5.5	6.0	C 7.5	JLB	
12/1201				0.9°		5.5	0.0											5.5	1.0	6.5	D+	6.0	5.5	6.0	C 7.5	JLB	
13/0001			OW	EYE IN	B/W	5.5+	0.5											6.0+	0.5	6.5+	D+	6.5	6.5	6.5+	C 8.0	JLB	
13/1201				DG	EYE IN	CMG	6.5	0.5***										7.0	0.5	7.5	D+	7.5	7.0	7.5	C 8.0	JLB	
13/1231				0.9°		5.5	0.5***											6.0	1.5	7.5	D+	7.5	7.0	7.5	C 8.0	JLB	
14/0001			WMG	EYE IN	CMG	6.5	1.0										7.5	0.5	8.0	D+	8.0	7.5	8.0	G? ???	JLB		
14/1201			DG	EYE IN	W/CMG	6.0	0.5***										6.5	0.0	6.5	W	6.5	7.0	6.5	7.5	??? JLB		
14/1231			0.7°		5.0	0.0											5.0	2.0	7.0	W	6.5	7.0	6.5	7.5	??? JLB		

0001 UTC 15 Sep 1988

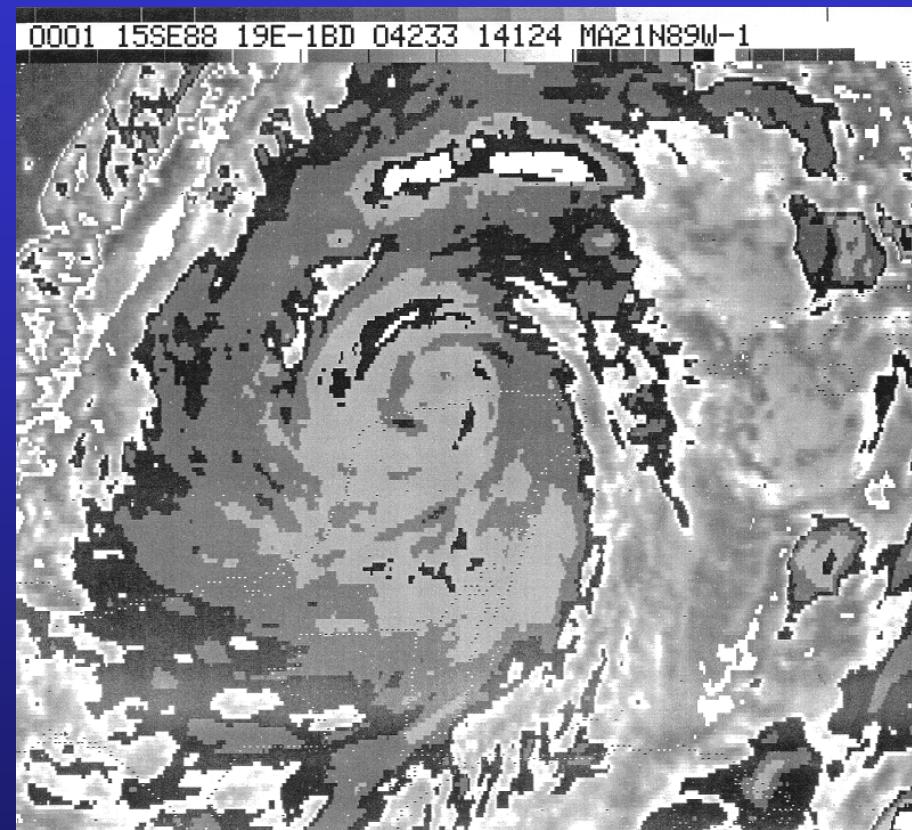
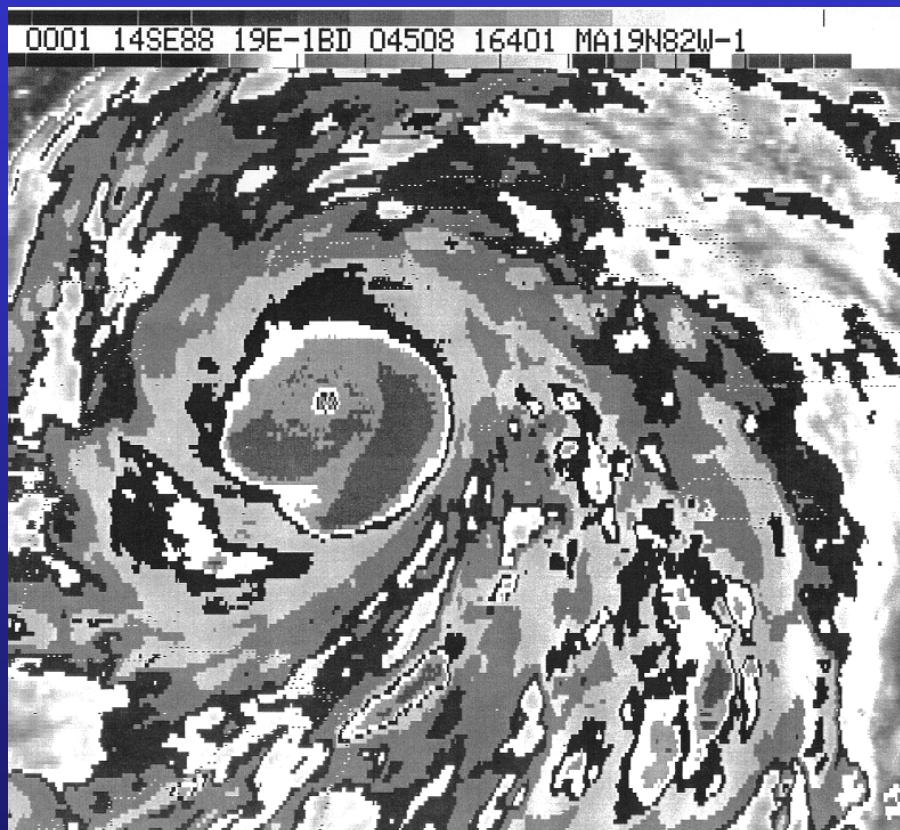


Issues for 0001 UTC 15 Sep 1988

The hurricane has been over land for most of the last 12 hours. How does this affect the analysis? How does this affect the MET?

Which cloud pattern could be used for measurements?

24 hr change?



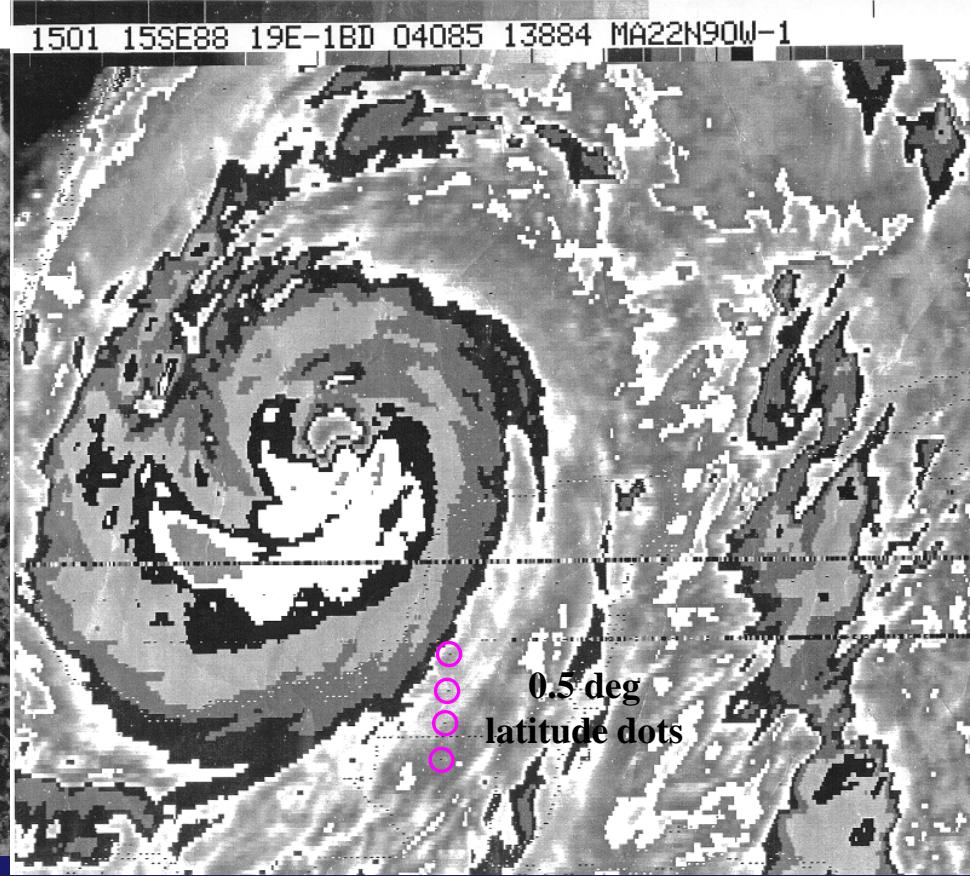
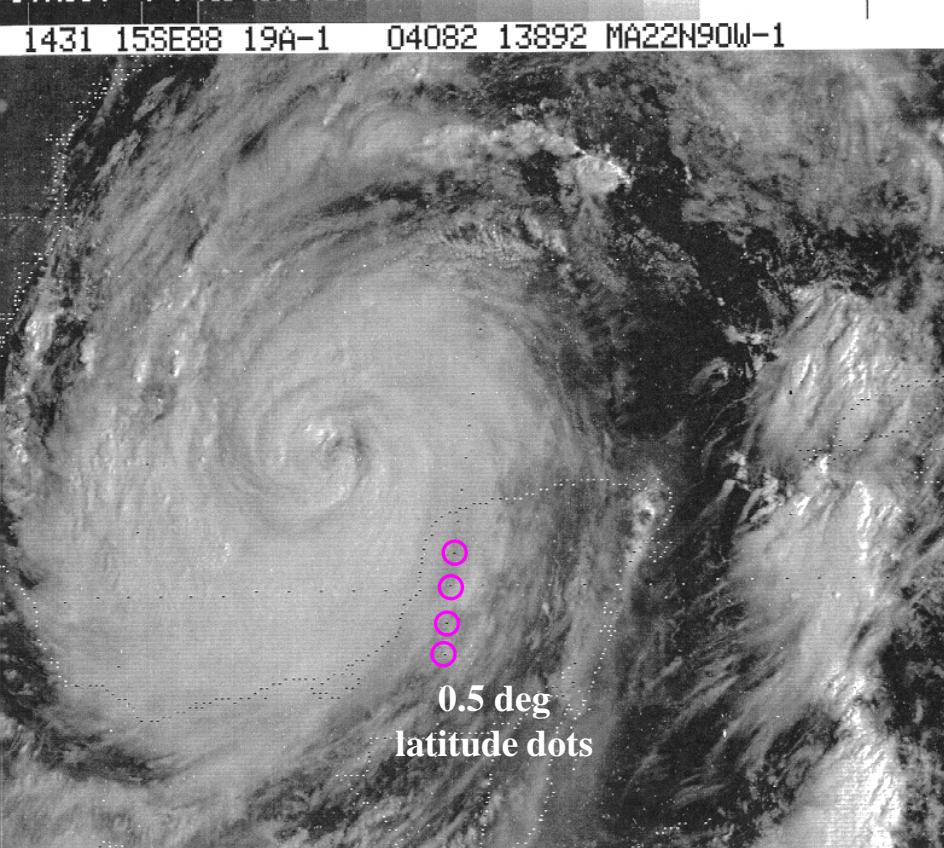
W

TROPICAL CYCLONE ANALYSIS WORKSHEET

From Vernon F. Dvorak May 1982		T-Number Estimates from Measurements for Data-T (DT) Computation											T-Number Estimates from Model and DT Constraints																				
STEP: 1.0		2A, B				2C			2D		2E			3		4		5		6		7, 8		9		10							
Description	Location	Curved Band or Shear				Eye Pattern		Eye # + Eye Adj = Central Feature (CF)		CDO	Embedded Center			CCC	Trend	MET	PAT	FT	CI	24-hour forecast													
Rules:	Locate cloud system center (CSC) at focal point of cloud curvature	Use spiral arc length (tenths) or shear distance (degrees latitude)				(VIS) Use embedded distance (deg. Latitude)	(EIR) Use surrounding temperature (shade on BD curve)	From the VIS and EIR tables and rules		(VIS) Size of Central Dense Overcast (deg. latitude)	(EIR) Embedded temperature (shade on BD curve)	Data T-Number Computation CF + Banding Feature (BF) = DT			Use rules	24-hr change	From 24-hr old FT and Step 4 trend	From pictographs on the flowcharts	Use rules	Use rules	Adjust model forecast if necessary												
Date/Time (UTC)	Lat. (°N)	Lon. (°W)	DT1.5 ±0.5	DT2.5	DT3.0	DT3.5	DT4.0	DT4.5																		Analyst initials							
08/1301			0.4														2.5	D	1.0	2.0	1.5	1.5	P	2.5	JLB								
08/2301			NO	DT	-	USE	RULES									N/A		D	1.5	1.5	1.5	1.5	P	2.5	JLB								
09/1201			0.8°													2.0		D	2.5	2.0	2.0	2.0	P	2.5	JLB								
10/0001				0.65												3.0		D	2.5	3.0	3.0	3.0	P	4.5	JLB								
10/1201				0.65												3.0		D	3.0	3.0	3.0	3.0	P	4.0	JLB								
10/1201																IRREG	1.5°	2.5+	0.5	3.0+													
11/0001																		CF	BF	DT													
11/0001																																	
11/0001																																	
11/1101																																	
11/1101																																	
11/1201																	LG	5.0+	0.0	5.0+	D	4.0	6.0	4.5	6.0	JLB							
11/1201																		LG	4.5+	0.0	4.5+												
11/1201																		3.5	1.0+	4.5+	D	4.0	5.0	4.5+	4.5+	JLB							
11/1201																				4.5													
12/0001																	OW	EYE IN	LG	5.0	0.0	5.0	0.0	5.5	5.5	5.0	P	6.0	JLB				
12/1131																		WMG	EYE IN	LG/B	5.0	1.0	6.0	0.0	6.0	D+	6.0	5.5	6.0	6.0	C	7.5	JLB
12/1201																		0.9°	5.5	0.0	5.5	1.0	6.5	1.0	5.5	D+	6.0	5.5	6.0	6.0	C	7.5	JLB
13/0001																		OW	EYE IN	B/W	5.5+	0.5	6.0+	0.5	6.5+	D+	6.5	6.5	6.5+	6.5+	C	8.0	JLB
13/1201																		DG	EYE IN	CMG	6.5	0.5***	7.0	0.5	7.5	D+	7.5	7.0	7.5	7.5	C	8.0	JLB
13/1231																		0.9°	5.5	0.5***	5.5	1.5	6.0	1.5	7.5	D+	7.5	7.0	7.5	7.5	C	8.0	JLB
14/0001																		WMG	EYE IN	CMG	6.5	1.0	7.5	0.5	8.0	D+	8.0	7.5	8.0	8.0	G?	???	JLB
14/1201																		DG	EYE IN	W/CMG	6.0	0.5***	6.5	0.0	6.5	W	6.5	7.0	6.5	7.5	B	???	JLB
14/1231																		0.7°	5.0	0.0	5.0	2.0	5.0	2.0	7.0	W	6.5	7.0	6.5	7.5	B	???	JLB

TROPICAL CYCLONE ANALYSIS WORKSHEET

1431/1501 UTC 15 Sep 1988



Issues for 1431/1501 UTC

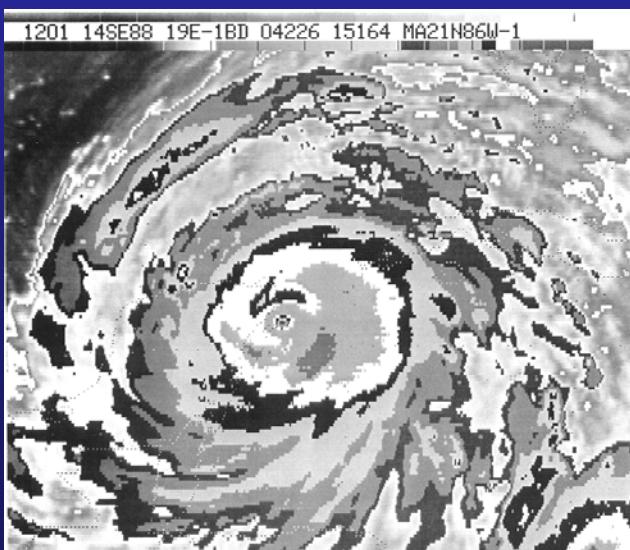
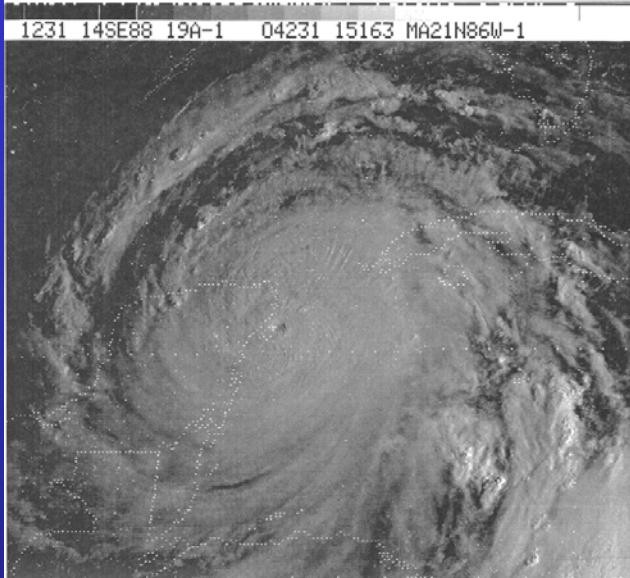
15 Sep 1988

How has the storm changed in the last 24 hours? Is there any change in development trend?

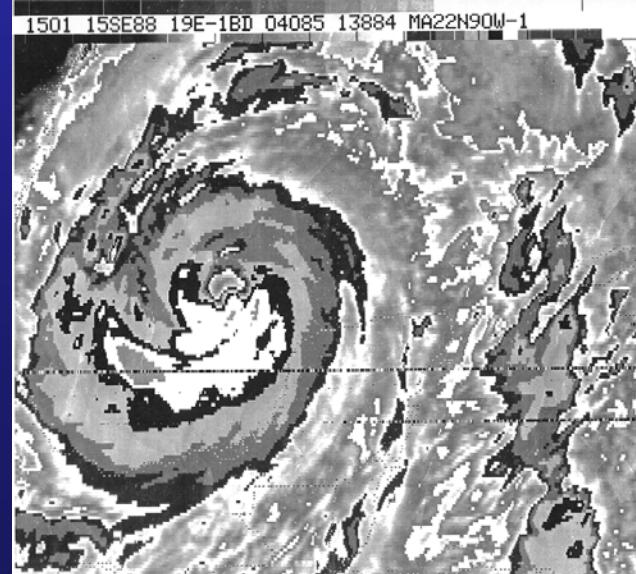
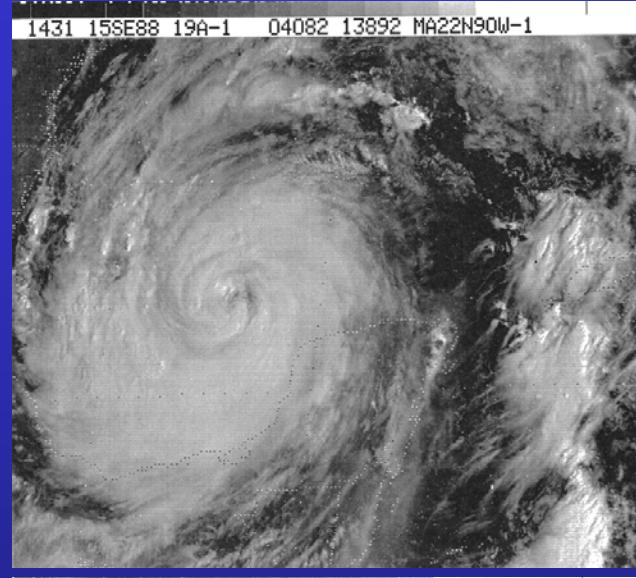
What cloud patterns could be used for measurements? Which one might be the best?

Can infrared banding be used here?

24 hr change?



W



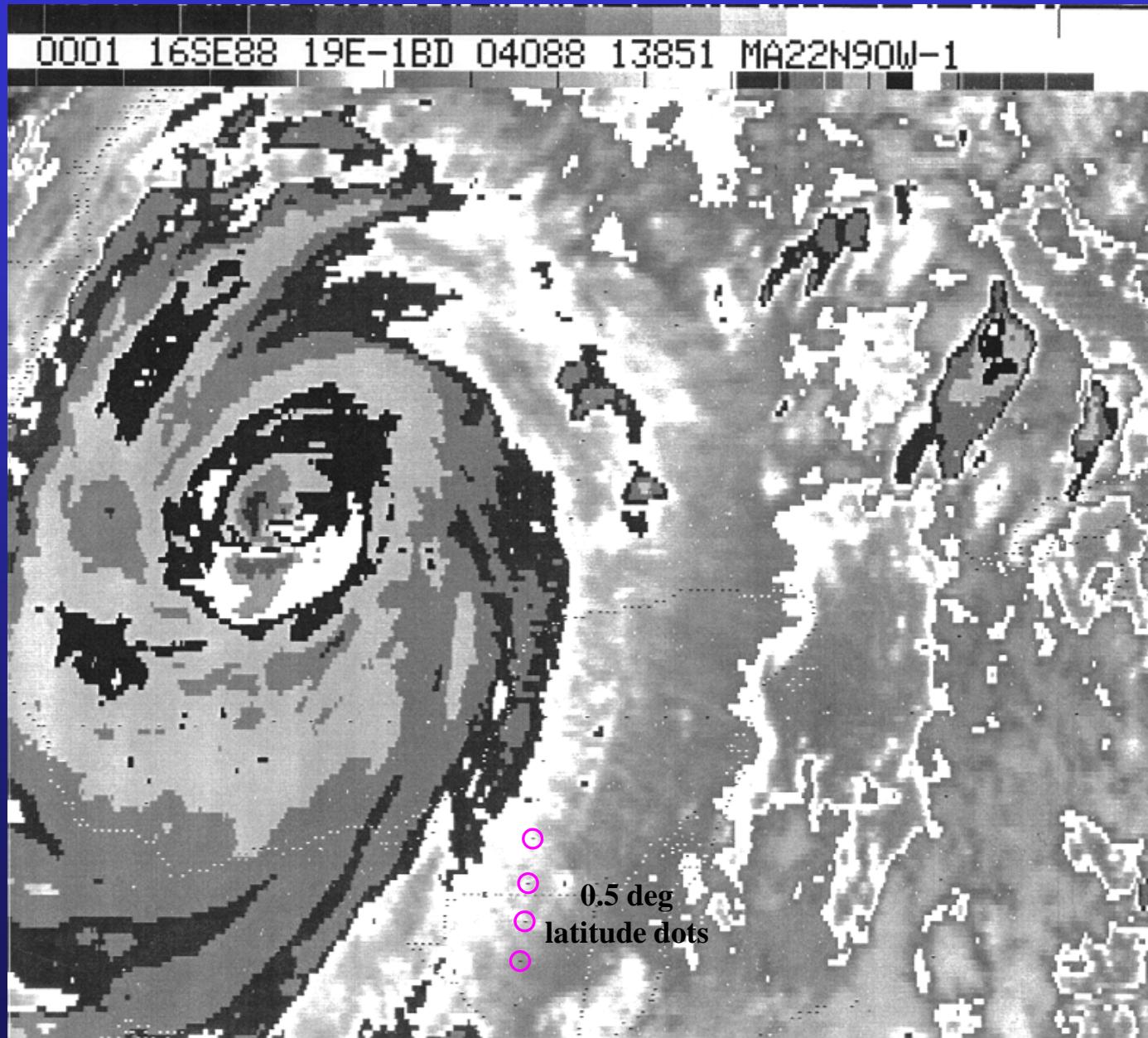
TROPICAL CYCLONE ANALYSIS WORKSHEET

From Vernon F. Dvorak May 1982		T-Number Estimates from Measurements for Data-T (DT) Computation												T-Number Estimates from Model and DT Constraints														
STEP:	1.0	2A, B				2C				2D		2E						3		4	5	6		7, 8		9	10	
Description	Location	Curved Band or Shear				Eye Pattern		Eye # + Eye Adj = Central Feature (CF)		CDO	Embedded Center					CCC	Trend	MET	PAT	FT	CI	24-hour forecast						
Rules:	Locate cloud system center (CSC) at focal point of cloud curvature	Use spiral arc length (tenths) or shear distance (degrees latitude)				(VIS) Use embedded distance (deg. Latitude)	(EIR) Use surrounding temperature (shade on BD curve)	From the VIS and EIR tables and rules		(VIS) Size of Central Dense Overcast (deg. Latitude)	(EIR) Embedded temperature (shade on BD curve)	Data T-Number Computation CF + Banding Feature (BF) = DT				Use rules	24-hr change	From 24-hr old FT and Step 4 trend	From pictographs on the flowcharts	Use rules	Use rules	Adjust model forecast if necessary						
Date/Time (UTC)	Lat. ($^{\circ}$ N)	Lon. ($^{\circ}$ W)	DT1.5 ±0.5	DT2.5	DT3.0	DT3.5	DT4.0	DT4.5					CF	BF	DT	Central Cold Cover	D-Developing W- Weakening S- Steady/Same	Model Expected T-Number	Pattern T-Number	Final T-Number	Current Intensity Number	List Rule Used	Forecast Intensity Number	Analyst Initials				
08/1301			0.4													2.5	D	1.0	2.0	1.5	1.5	P	2.5	JLB				
08/2301			NO DT	-	USE RULES											N/A	D	1.5	1.5	1.5	1.5	P	2.5	JLB				
09/1201			0.8°													2.0	D	2.5	2.0	2.0	2.0	P	2.5	JLB				
10/0001			0.65													3.0	D	2.5	3.0	3.0	3.0	P	4.5	JLB				
10/1201			0.65													3.0	D	3.0	3.0	3.0	3.0	P	4.0	JLB				
10/1201																IRREG 1.5°	2.5+ 0.5 3.0+											
11/0001			1.20														4.0	D	3.5	4.5	4.0	4.0	P	5.0	JLB			
11/0001				DG	EYE IN	MG	4.5	-0.5					4.0	0.0	4.0													
11/1101				LG	EYE IN	LG/W	5.0+	0.0					5.0+	0.0	5.0+		D	4.0	6.0	4.5	4.5	C	6.0	JLB				
11/1101																LG	4.5+ 0.0 4.5+											
11/1201				0.5°			4.0	-0.5					3.5	1.0+	4.5+		D	4.0	5.0	4.5+	4.5+	C	6.0	JLB				
11/1201				1.5													4.5											
12/0001			OW	EYE IN	LG	5.0	0.0						5.0	0.0	5.0		D+	5.5	5.5	5.0	5.0	P	6.0	JLB				
12/1131				WMG	EYE IN	LG/B	5.0	1.0					6.0	0.0	6.0		D+	6.0	5.5	6.0	6.0	C	7.5	JLB				
12/1201				0.9°		5.5	0.0						5.5	1.0	6.5		D+	6.0	5.5	6.0	6.0	C	7.5	JLB				
13/0001			OW	EYE IN	B/W	5.5+	0.5						6.0+	0.5	6.5+		D+	6.5	6.5	6.5+	6.5+	C	8.0	JLB				
13/1201				DG	EYE IN	CMG	6.5	0.5***					7.0	0.5	7.5		D+	7.5	7.0	7.5	7.5	C	8.0	JLB				
13/1231						0.9°	5.5	0.5***					6.0	1.5	7.5		D+	7.5	7.0	7.5	7.5	C	8.0	JLB				
14/0001			WMG	EYE IN	CMG	6.5	1.0						7.5	0.5	8.0		D+	8.0	7.5	8.0	8.0	G?	???	JLB				
14/1201			DG	EYE IN	W/CMG	6.0	0.5***						6.5	0.0	6.5		W	6.5	7.0	6.5	7.5	B	???	JLB				
14/1231			0.7°			5.0	0.0						5.0	2.0	7.0		W	6.5	7.0	6.5	7.5	B	???	JLB				

TROPICAL CYCLONE ANALYSIS WORKSHEET

From Vernon F. Dvorak May 1982		T-Number Estimates from Measurements for Data-T (DT) Computation													T-Number Estimates from Model and DT Constraints														
STEP: 1.0		2A, B					2C			2D		2E				3		4		5		6		7, 8		9		10	
Description	Location	Curved Band or Shear					Eye Pattern		Eye # + Eye Adj = Central Feature (CF)		CDO	Embedded Center			CCC	Trend	MET	PAT		FT		CI		24-hour forecast					
Rules:	Locate cloud system center (CSC) at focal point of cloud curvature	Use spiral arc length (tenths) or shear distance (degrees latitude)					(VIS) Use embedded distance (deg. Latitude)	(EIR) Use surrounding temperature (shade on BD curve)	From the VIS and EIR tables and rules		(VIS) Size of Central Dense Overcast (deg. latitude)	(EIR) Embedded temperature (shade on BD curve)	Data T-Number Computation CF + Banding Feature (BF) = DT			Use rules	24-hr change	From 24-hr old FT and Step 4 trend	From pictographs on the flowcharts		Use rules		Adjust model forecast if necessary						
		<img alt="Icon 1: 10-15 km, 20-25 km, 30-35 km, 40-45 km, 50-55 km, 60-65 km, 70-75 km, 80-85 km, 90-95 km, 100-105 km, 110-115 km, 120-125 km, 130-135 km, 140-145 km, 150-155 km, 160-165 km, 170-175 km, 180-185 km, 190-195 km, 200-205 km, 210-215 km, 220-225 km, 230-235 km, 240-245 km, 250-255 km, 260-265 km, 270-275 km, 280-285 km, 290-295 km, 300-305 km, 310-315 km, 320-325 km, 330-335 km, 340-345 km, 350-355 km, 360-365 km, 370-375 km, 380-385 km, 390-395 km, 400-405 km, 410-415 km, 420-425 km, 430-435 km, 440-445 km, 450-455 km, 460-465 km, 470-475 km, 480-485 km, 490-495 km, 500-505 km, 510-515 km, 520-525 km, 530-535 km, 540-545 km, 550-555 km, 560-565 km, 570-575 km, 580-585 km, 590-595 km, 600-605 km, 610-615 km, 620-625 km, 630-635 km, 640-645 km, 650-655 km, 660-665 km, 670-675 km, 680-685 km, 690-695 km, 700-705 km, 710-715 km, 720-725 km, 730-735 km, 740-745 km, 750-755 km, 760-765 km, 770-775 km, 780-785 km, 790-795 km, 800-805 km, 810-815 km, 820-825 km, 830-835 km, 840-845 km, 850-855 km, 860-865 km, 870-875 km, 880-885 km, 890-895 km, 900-905 km, 910-915 km, 920-925 km, 930-935 km, 940-945 km, 950-955 km, 960-965 km, 970-975 km, 980-985 km, 990-995 km, 1000-1005 km, 1010-1015 km, 1020-1025 km, 1030-1035 km, 1040-1045 km, 1050-1055 km, 1060-1065 km, 1070-1075 km, 1080-1085 km, 1090-1095 km, 1100-1105 km, 1110-1115 km, 1120-1125 km, 1130-1135 km, 1140-1145 km, 1150-1155 km, 1160-1165 km, 1170-1175 km, 1180-1185 km, 1190-1195 km, 1200-1205 km, 1210-1215 km, 1220-1225 km, 1230-1235 km, 1240-1245 km, 1250-1255 km, 1260-1265 km, 1270-1275 km, 1280-1285 km, 1290-1295 km, 1300-1305 km, 1310-1315 km, 1320-1325 km, 1330-1335 km, 1340-1345 km, 1350-1355 km, 1360-1365 km, 1370-1375 km, 1380-1385 km, 1390-1395 km, 1400-1405 km, 1410-1415 km, 1420-1425 km, 1430-1435 km, 1440-1445 km, 1450-1455 km, 1460-1465 km, 1470-1475 km, 1480-1485 km, 1490-1495 km, 1500-1505 km, 1510-1515 km, 1520-1525 km, 1530-1535 km, 1540-1545 km, 1550-1555 km, 1560-1565 km, 1570-1575 km, 1580-1585 km, 1590-1595 km, 1600-1605 km, 1610-1615 km, 1620-1625 km, 1630-1635 km, 1640-1645 km, 1650-1655 km, 1660-1665 km, 1670-1675 km, 1680-1685 km, 1690-1695 km, 1700-1705 km, 1710-1715 km, 1720-1725 km, 1730-1735 km, 1740-1745 km, 1750-1755 km, 1760-1765 km, 1770-1775 km, 1780-1785 km, 1790-1795 km, 1800-1805 km, 1810-1815 km, 1820-1825 km, 1830-1835 km, 1840-1845 km, 1850-1855 km, 1860-1865 km, 1870-1875 km, 1880-1885 km, 1890-1895 km, 1900-1905 km, 1910-1915 km, 1920-1925 km, 1930-1935 km, 1940-1945 km, 1950-1955 km, 1960-1965 km, 1970-1975 km, 1980-1985 km, 1990-1995 km, 2000-2005 km, 2010-2015 km, 2020-2025 km, 2030-2035 km, 2040-2045 km, 2050-2055 km, 2060-2065 km, 2070-2075 km, 2080-2085 km, 2090-2095 km, 2100-2105 km, 2110-2115 km, 2120-2125 km, 2130-2135 km, 2140-2145 km, 2150-2155 km, 2160-2165 km, 2170-2175 km, 2180-2185 km, 2190-2195 km, 2200-2205 km, 2210-2215 km, 2220-2225 km, 2230-2235 km, 2240-2245 km, 2250-2255 km, 2260-2265 km, 2270-2275 km, 2280-2285 km, 2290-2295 km, 2300-2305 km, 2310-2315 km, 2320-2325 km, 2330-2335 km, 2340-2345 km, 2350-2355 km, 2360-2365 km, 2370-2375 km, 2380-2385 km, 2390-2395 km, 2400-2405 km, 2410-2415 km, 2420-2425 km, 2430-2435 km, 2440-2445 km, 2450-2455 km, 2460-2465 km, 2470-2475 km, 2480-2485 km, 2490-2495 km, 2500-2505 km, 2510-2515 km, 2520-2525 km, 2530-2535 km, 2540-2545 km, 2550-2555 km, 2560-2565 km, 2570-2575 km, 2580-2585 km, 2590-2595 km, 2600-2605 km, 2610-2615 km, 2620-2625 km, 2630-2635 km, 2640-2645 km, 2650-2655 km, 2660-2665 km, 2670-2675 km, 2680-2685 km, 2690-2695 km, 2700-2705 km, 2710-2715 km, 2720-2725 km, 2730-2735 km, 2740-2745 km, 2750-2755 km, 2760-2765 km, 2770-2775 km, 2780-2785 km, 2790-2795 km, 2800-2805 km, 2810-2815 km, 2820-2825 km, 2830-2835 km, 2840-2845 km, 2850-2855 km, 2860-2865 km, 2870-2875 km, 2880-2885 km, 2890-2895 km, 2900-2905 km, 2910-2915 km, 2920-2925 km, 2930-2935 km, 2940-2945 km, 2950-2955 km, 2960-2965 km, 2970-2975 km, 2980-2985 km, 2990-2995 km, 3000-3005 km, 3010-3015 km, 3020-3025 km, 3030-3035 km, 3040-3045 km, 3050-3055 km, 3060-3065 km, 3070-3075 km, 3080-3085 km, 3090-3095 km, 3100-3105 km, 3110-3115 km, 3120-3125 km, 3130-3135 km, 3140-3145 km, 3150-3155 km, 3160-3165 km, 3170-3175 km, 3180-3185 km, 3190-3195 km, 3200-3205 km, 3210-3215 km, 3220-3225 km, 3230-3235 km, 3240-3245 km, 3250-3255 km, 3260-3265 km, 3270-3275 km, 3280-3285 km, 3290-3295 km, 3300-3305 km, 3310-3315 km, 3320-3325 km, 3330-3335 km, 3340-3345 km, 3350-3355 km, 3360-3365 km, 3370-3375 km, 3380-3385 km, 3390-3395 km, 3400-3405 km, 3410-3415 km, 3420-3425 km, 3430-3435 km, 3440-3445 km, 3450-3455 km, 3460-3465 km, 3470-3475 km, 3480-3485 km, 3490-3495 km, 3500-3505 km, 3510-3515 km, 3520-3525 km, 3530-3535 km, 3540-3545 km, 3550-3555 km, 3560-3565 km, 3570-3575 km, 3580-3585 km, 3590-3595 km, 3600-3605 km, 3610-3615 km, 3620-3625 km, 3630-3635 km, 3640-3645 km, 3650-3655 km, 3660-3665 km, 3670-3675 km, 3680-3685 km, 3690-3695 km, 3700-3705 km, 3710-3715 km, 3720-3725 km, 3730-3735 km, 3740-3745 km, 3750-3755 km, 3760-3765 km, 3770-3775 km, 3780-3785 km, 3790-3795 km, 3800-3805 km, 3810-3815 km, 3820-3825 km, 3830-3835 km, 3840-3845 km, 3850-3855 km, 3860-3865 km, 3870-3875 km, 3880-3885 km, 3890-3895 km, 3900-3905 km, 3910-3915 km, 3920-3925 km, 3930-3935 km, 3940-3945 km, 3950-3955 km, 3960-3965 km, 3970-3975 km, 3980-3985 km, 3990-3995 km, 4000-4005 km, 4010-4015 km, 4020-4025 km, 4030-4035 km, 4040-4045 km, 4050-4055 km, 4060-4065 km, 4070-4075 km, 4080-4085 km, 4090-4095 km, 4100-4105 km, 4110-4115 km, 4120-4125 km, 4130-4135 km, 4140-4145 km, 4150-4155 km, 4160-4165 km, 4170-4175 km, 4180-4185 km, 4190-4195 km, 4200-4205 km, 4210-4215 km, 4220-4225 km, 4230-4235 km, 4240-4245 km, 4250-4255 km, 4260-4265 km, 4270-4275 km, 4280-4285 km, 4290-4295 km, 4300-4305 km, 4310-4315 km, 4320-4325 km, 4330-4335 km, 4340-4345 km, 4350-4355 km, 4360-4365 km, 4370-4375 km, 4380-4385 km, 4390-4395 km, 4400-4405 km, 4410-4415 km, 4420-4425 km, 4430-4435 km, 4440-4445 km, 4450-4455 km, 4460-4465 km, 4470-4475 km, 4480-4485 km, 4490-4495 km, 4500-4505 km, 4510-4515 km, 4520-4525 km, 4530-4535 km, 4540-4545 km, 4550-4555 km, 4560-4565 km, 4570-4575 km, 4580-4585 km, 4590-4595 km, 4600-4605 km, 4610-4615 km, 4620-4625 km, 4630-4635 km, 4640-4645 km, 4650-4655 km, 4660-4665 km, 4670-4675 km, 4680-4685 km, 4690-4695 km, 4700-4705 km, 4710-4715 km, 4720-4725 km, 4730-4735 km, 4740-4745 km, 4750-4755 km, 4760-4765 km, 4770-4775 km, 4780-4785 km, 4790-4795 km, 4800-4805 km, 4810-4815 km, 4820-4825 km, 4830-4835 km, 4840-4845 km, 4850-4855 km, 4860-4865 km, 4870-4875 km, 4880-4885 km, 4890-4895 km, 4900-4905 km, 4910-4915 km, 4920-4925 km, 4930-4935 km, 4940-4945 km, 4950-4955 km, 4960-4965 km, 4970-4975 km, 4980-4985 km, 4990-4995 km, 5000-5005 km, 5010-5015 km, 5020-5025 km, 5030-5035 km, 5040-5045 km, 5050-5055 km, 5060-5065 km, 5070-5075 km, 5080-5085 km, 5090-5095 km, 5100-5105 km, 5110-5115 km, 5120-5125 km, 5130-5135 km, 5140-5145 km, 5150-5155 km, 5160-5165 km, 5170-5175 km, 5180-5185 km, 5190-5195 km, 5200-5205 km, 5210-5215 km, 5220-5225 km, 5230-5235 km, 5240-5245 km, 5250-5255 km, 5260-5265 km, 5270-5275 km, 5280-5285 km, 5290-5295 km, 5300-5305 km, 5310-5315 km, 5320-5325 km, 5330-5335 km, 5340-5345 km, 5350-5355 km, 5360-5365 km, 5370-5375 km, 5380-5385 km, 5390-5395 km, 5400-5405 km, 5410-5415 km, 5420-5425 km, 5430-5435 km, 5440-5445 km, 5450-5455 km, 5460-5465 km, 5470-5475 km, 5480-5485 km, 5490-5495 km, 5500-5505 km, 5510-5515 km, 5520-5525 km, 5530-5535 km, 5540-5545 km, 5550-5555 km, 5560-5565 km, 5570-5575 km, 5580-5585 km, 5590-5595 km, 5600-5605 km, 5610-5615 km, 5620-5625 km, 5630-5635 km, 5640-5645 km, 5650-5655 km, 5660-5665 km, 5670-5675 km, 5680-5685 km, 5690-5695 km, 5700-5705 km, 5710-5715 km, 5720-5725 km, 5730-5735 km, 5740-5745 km, 5750-5755 km, 5760-5765 km, 5770-5775 km, 5780-5785 km, 5790-5795 km, 5800-5805 km, 5810-5815 km, 5820-5825 km, 5830-5835 km, 5840-5845 km, 5850-5855 km, 5860-5865 km, 5870-5875 km, 5880-5885 km, 5890-5895 km, 5900-5905 km, 5910-5915 km, 5920-5925 km, 5930-5935 km, 5940-5945 km, 5950-5955 km, 5960-5965 km, 5970-5975 km, 5980-5985 km, 5990-5995 km, 6000-6005 km, 6010-6015 km, 6020-6025 km, 6030-6035 km, 6040-6045 km, 6050-6055 km, 6060-6065 km, 6070-6075 km, 6080-6085 km, 6090-6095 km, 6100-6105 km, 6110-6115 km, 6120-6125 km, 6130-6135 km, 6140-6145 km, 6150-6155 km, 6160-6165 km, 6170-6175 km, 6180-6185 km, 6190-6195 km, 6200-6205 km, 6210-6215 km, 6220-6225 km, 6230-6235 km, 6240-6245 km, 6250-6255 km, 6260-6265 km, 6270-6275 km, 6280-6285 km, 6290-6295 km, 6300-6305 km, 6310-6315 km, 6320-6325 km, 6330-6335 km, 6340-6345 km, 6350-6355 km, 6360-6365 km, 6370-6375 km, 6380-6385 km, 6390-6395 km, 6400-6405 km, 6410-6415 km, 6420-6425 km, 6430-6435 km, 6440-6445 km, 6450-6455 km, 6460-6465 km, 6470-6475 km, 6480-6485 km, 6490-6495 km, 6500-6505 km, 6510-6515 km, 6520-6525 km, 6530-6535 km, 6540-6545 km, 6550-6555 km, 6560-6565 km, 6570-6575 km, 6580-6585 km, 6590-6595 km, 6600-6605 km, 6610-6615 km, 6620-6625 km, 6630-6635 km, 6640-6645 km, 6650-6655 km, 6660-6665 km, 6670-6675 km, 6680-6685 km, 6690-6695 km, 6700-6705 km, 6710-6715 km, 6720-6725 km, 6730-6735 km, 6740-6745 km, 6750-6755 km, 6760-6765 km, 6770-6775 km, 6780-6785 km, 6790-6795 km, 6800-6805 km, 6810-6815 km, 6820-6825 km, 6830-6835 km, 6840-6845 km, 6850-6855 km, 6860-6865 km, 6870-6875 km, 6880-6885 km, 6890-6895 km, 6900-6905 km, 6910-6915 km, 6920-6925 km, 6930-6935 km, 6940-6945 km, 6950-6955 km, 6960-6965 km, 6970-6975 km, 6980-6985 km, 6990-6995 km, 7000-7005 km, 7010-7015 km, 7020-7025 km, 7030-7035 km, 7040-7045 km, 7050-7055 km, 7060-7065 km, 7070-7075 km, 7080-7085 km, 7090-7095 km, 7100-7105 km, 7110-7115 km, 7120-7125 km, 7130-7135 km, 7140-7145 km, 7150-7155 km, 7160-7165 km, 7170-7175 km, 7180-7185 km, 7190-7195 km, 7200-7205 km, 7210-7215 km, 7220-7225 km, 7230-7235 km, 7240-7245 km, 7250-7255 km, 7260-7265 km, 7270-7275 km, 7280-7285 km, 7290-7295 km, 7300-7305 km, 7310-7315 km, 7320-7325 km, 7330-7335 km, 7340-7345 km, 7350-7355 km, 7360-7365 km, 7370-7375 km, 7380-7385 km, 7390-7395 km, 7400-7405 km, 7410-7415 km, 7420-7425 km, 7430-7435 km, 7440-7445 km, 7450-7455 km, 7460-7465 km, 7470-7475 km, 7480-7485 km, 7490-7495 km, 7500-7505 km, 7510-7515 km, 7520-7525 km, 7530-7535 km, 7540-7545 km, 7550-7555 km, 7560-7565 km, 7570-7575 km, 7580-7585 km, 7590-7595 km, 7600-7605 km, 7610-7615 km, 7620-7625 km, 7630-7635 km, 7640-7645 km, 7650-7655 km, 7660-7665 km, 7670-7675 km, 7680-7685 km, 7690-7695 km, 7700-7705 km, 7710-7715 km, 7720-7725 km, 7730-7735 km, 7740-7745 km, 7750-7755 km, 7760-7765 km, 7770-7775 km, 7780-7785 km, 7790-7795 km, 7800-7805 km, 7810-7815 km, 7820-7825 km, 7830-7835 km, 7840-7845 km, 7850-7855 km, 7860-7865 km, 7870-7875 km, 7880-7885 km, 7890-7895 km, 7900-7905 km, 7910-7915 km, 7920-7925 km, 7930-7935 km, 7940-7945 km, 7950-7955 km, 7960-7965 km, 7970-7975 km, 7980-7985 km, 7990-7995 km, 8000-8005 km, 8010-8015 km, 8020-8025 km, 8030-8035 km, 8040-8045 km, 8050-8055 km, 8060-8065 km, 8070-8075 km, 8080-8085 km, 8090-8095 km, 8100-8105 km, 8110-8115 km, 8120-8125 km, 8130-8135 km, 8140-8145 km, 8150-8155 km, 8160-8165 km, 8170-8175 km, 8180-8185 km, 8190-8195 km, 8200-8205 km, 8210-8215 km, 8220-8225 km, 8230-8235 km, 8240-8245 km, 8250-8255 km, 8260-8265 km, 8270-8275 km, 8280-8285 km, 8290-8295 km, 8300-8305 km, 8310-8315 km, 8320-8325 km, 8330-8335 km, 8340-8345 km, 8350-8355 km, 8360-8365 km, 8370-8375 km, 8380-8385 km, 8390-8395 km, 8400-8405 km, 8410-8415 km, 8420-8425 km, 8430-8435 km, 8440-8445 km, 8450-8455 km, 8460-8465 km, 8470-8475 km, 8480-8485 km, 8490-8495 km, 8500-8505 km, 8510-8515 km, 8520-8525 km, 8530-8535 km, 8540-8545 km, 8550-8555 km, 8560-8565 km, 8570-8575 km, 8580-8585 km, 8590-8595 km, 8600-8605 km, 8610-8615 km, 8620-8625 km, 8630-8635 km, 8640-8645 km, 8650-8655 km, 8660-8665 km, 8670-8675 km, 8680-8685 km, 8690-8695 km, 8700-8705 km, 8710-8715 km, 8720-8725 km, 8730-8735 km, 8740-8745 km, 8750-8755 km, 8760-8765 km, 8770-8775 km, 8780-8785 km, 8790-8795 km																											

0001 UTC 16 Sep 1988

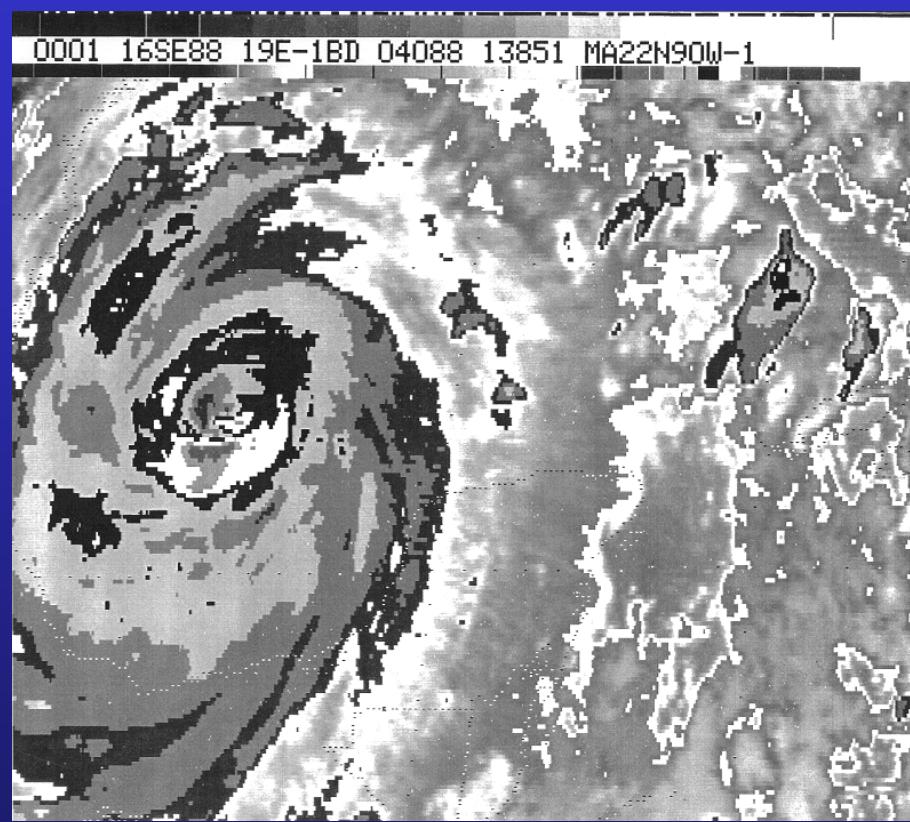
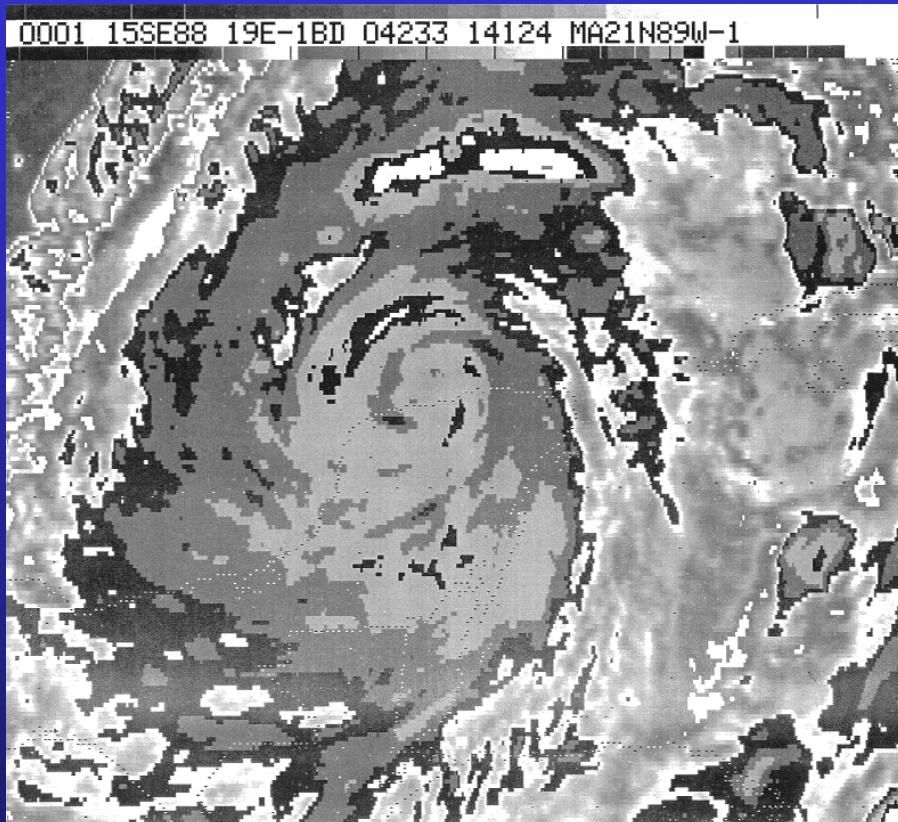


Issues for 0001 UTC 16 Sep 1988

How has the storm changed in the last 24 hours? Is there any change in development trend?

What cloud patterns could be used for measurements? Which one might be the best?

24 hr change?



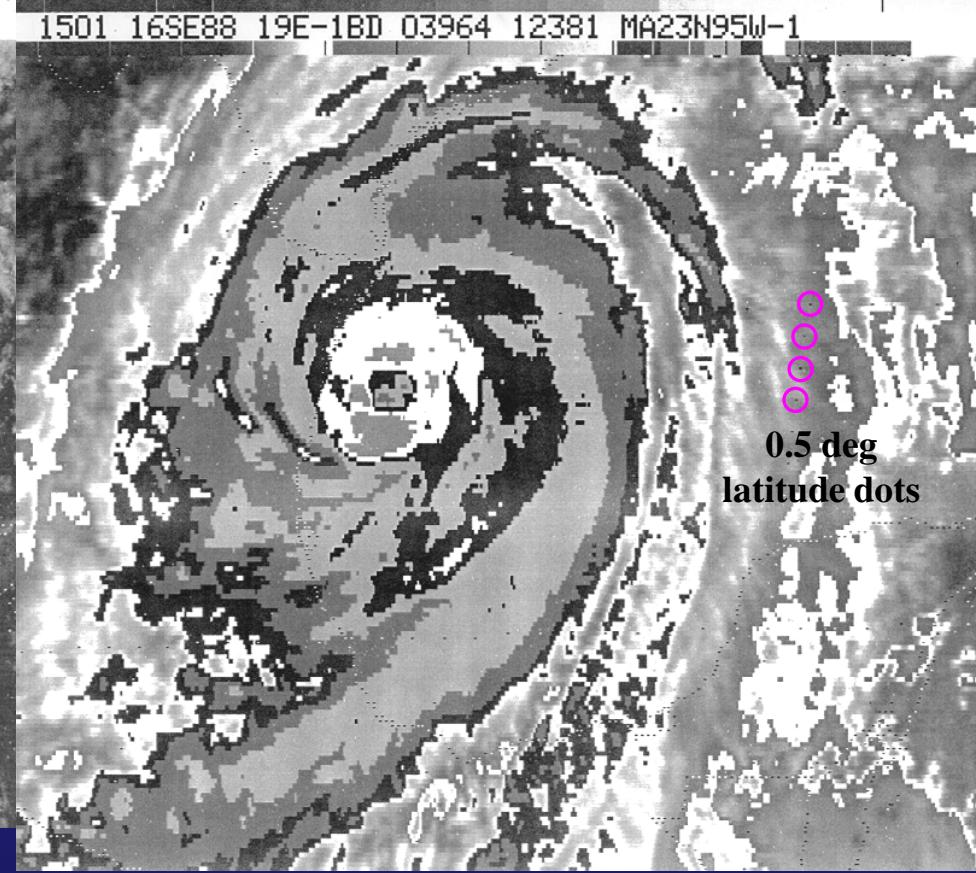
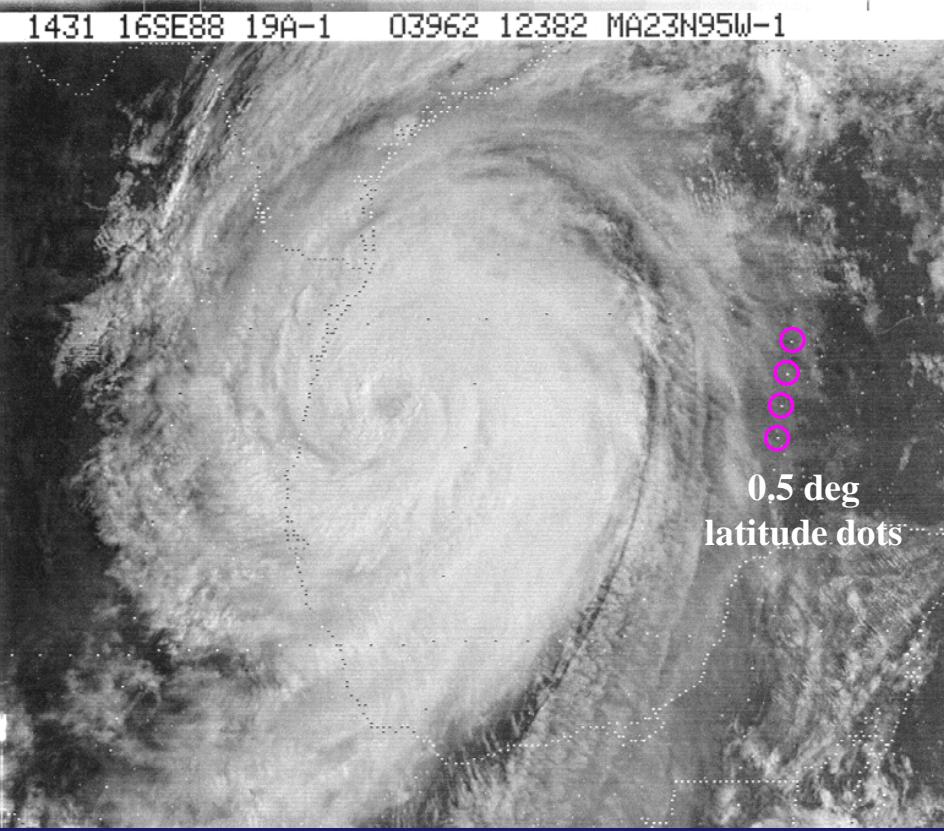
D

TROPICAL CYCLONE ANALYSIS WORKSHEET

From Vernon F. Dvorak May 1982		T-Number Estimates from Measurements for Data-T (DT) Computation												T-Number Estimates from Model and DT Constraints													
STEP:	1.0	2A, B				2C			2D	2E				3	4	5	6	7, 8	9	10							
Description	Location	Curved Band or Shear				Eye Pattern		Eye # + Eye Adj = Central Feature (CF)		CDO	Embedded Center				CCC	Trend	MET	PAT	FT	CI	24-hour forecast						
Rules:	Locate cloud system center (CSC) at focal point of cloud curvature	Use spiral arc length (tenths) or shear distance (degrees latitude)				(VIS) Use embedded distance (deg. Latitude)	(EIR) Use surrounding temperature (shade on BD curve)	From the VIS and EIR tables and rules		(VIS) Size of Central Dense Overcast (deg. Latitude)	(EIR) Embedded temperature (shade on BD curve)	Data T-Number Computation CF + Banding Feature (BF) = DT			Use rules	24-hr change	From 24-hr old FT and Step 4 trend	From pictographs on the flowcharts	Use rules	Use rules	Adjust model forecast if necessary						
Date/Time (UTC)	Lat. ($^{\circ}$ N)	Lon. ($^{\circ}$ W)	DT1.5 ±0.5	DT2.5	DT3.0	DT3.5	DT4.0	DT4.5														Analyst Initials					
08/1301			0.4															2.5	D	1.0	2.0	1.5	1.5	P	2.5	JLB	
08/2301			NO DT	-	USE RULES													N/A	D	1.5	1.5	1.5	1.5	P	2.5	JLB	
09/1201			0.8°															2.0	D	2.5	2.0	2.0	2.0	P	2.5	JLB	
10/0001			0.65															3.0	D	2.5	3.0	3.0	3.0	P	4.5	JLB	
10/1201			0.65															3.0	D	3.0	3.0	3.0	3.0	P	4.0	JLB	
10/1201																		IRREG 1.5°	2.5+	0.5	3.0+						
11/0001			1.20																4.0	D	3.5	4.5	4.0	4.0	P	5.0	JLB
11/0001				DG	EYE IN	MG	4.5	-0.5										4.0	0.0	4.0							
11/1101				LG	EYE IN	LG/W	5.0+	0.0										5.0+	0.0	5.0+	D	4.0	6.0	4.5	C 6.0	JLB	
11/1101																		LG	4.5+	0.0	4.5+						
11/1201				0.5°			4.0	-0.5										3.5	1.0+	4.5+	D	4.0	5.0	4.5+	C 6.0	JLB	
11/1201				1.5															4.5								
12/0001			OW	EYE IN	LG	5.0	0.0											5.0	0.0	5.0	D+	5.5	5.5	5.0	P 6.0	JLB	
12/1131				WMG	EYE IN	LG/B	5.0	1.0										6.0	0.0	6.0	D+	6.0	5.5	6.0	C 7.5	JLB	
12/1201				0.9°		5.5	0.0											5.5	1.0	6.5	D+	6.0	5.5	6.0	C 7.5	JLB	
13/0001			OW	EYE IN	B/W	5.5+	0.5											6.0+	0.5	6.5+	D+	6.5	6.5	6.5+	C 8.0	JLB	
13/1201				DG	EYE IN	CMG	6.5	0.5***										7.0	0.5	7.5	D+	7.5	7.0	7.5	C 8.0	JLB	
13/1231				0.9°		5.5	0.5***											6.0	1.5	7.5	D+	7.5	7.0	7.5	C 8.0	JLB	
14/0001			WMG	EYE IN	CMG	6.5	1.0										7.5	0.5	8.0	D+	8.0	7.5	8.0	G? ???	JLB		
14/1201			DG	EYE IN	W/CMG	6.0	0.5***										6.5	0.0	6.5	W	6.5	7.0	6.5	B ???	JLB		
14/1231			0.7°		5.0	0.0											5.0	2.0	7.0	W	6.5	7.0	6.5	B ???	JLB		

TROPICAL CYCLONE ANALYSIS WORKSHEET

1431/1501 UTC 16 Sep 1988



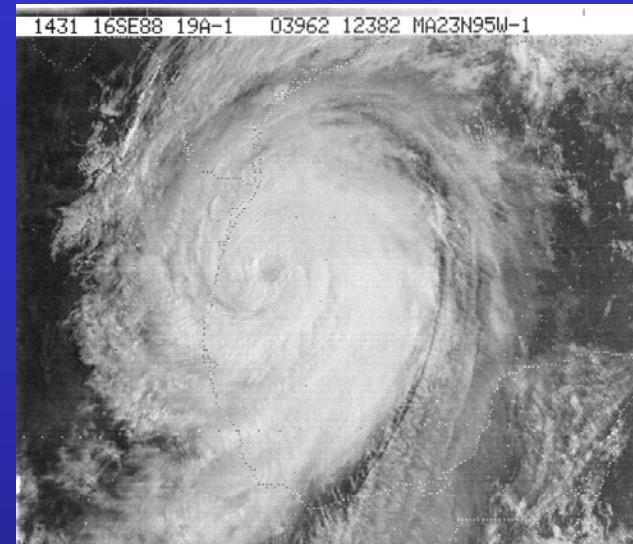
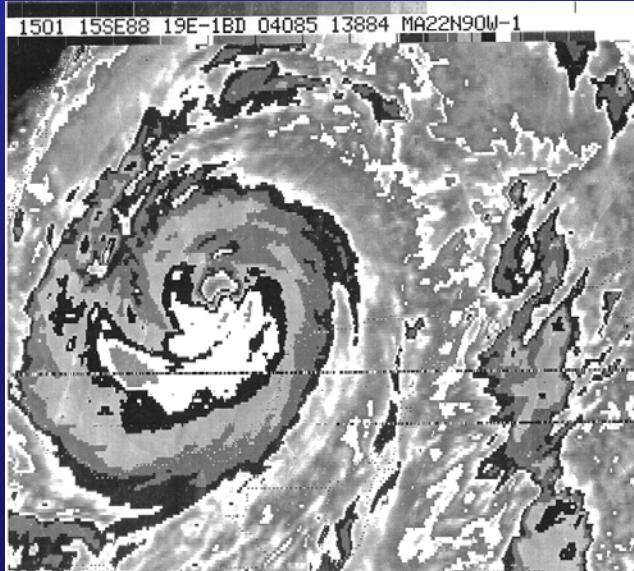
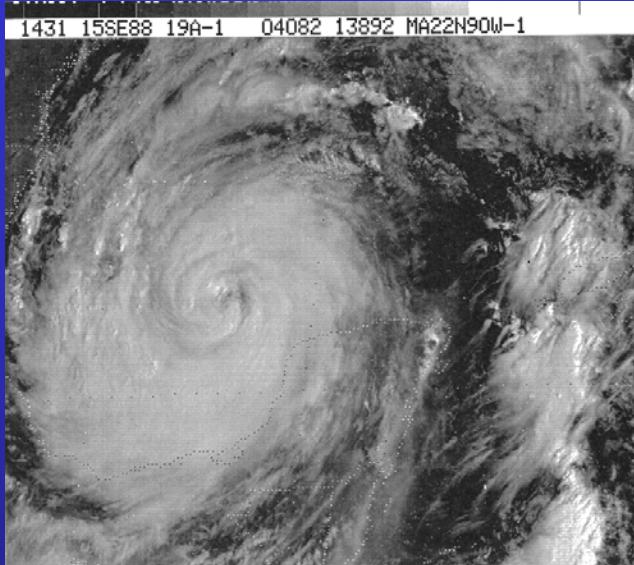
Issues for 1431/1501 UTC

16 Sep 1988

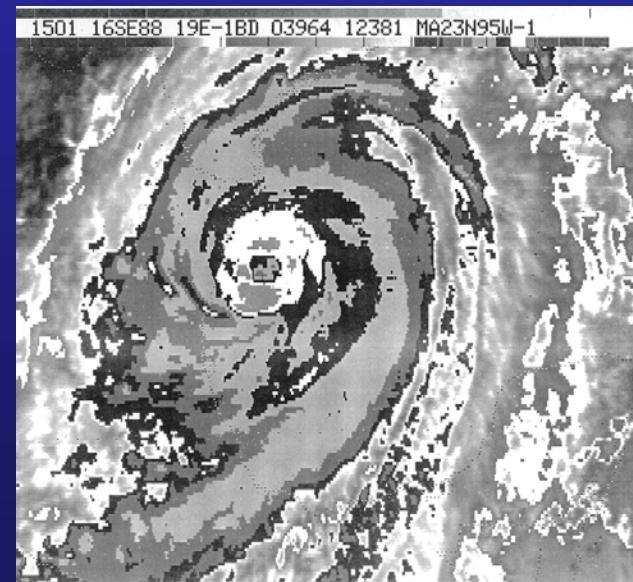
How has the storm changed in the last 24 hours? Is there any change in development rate or trend?

What cloud patterns could be used for measurements? Which one might be the best?

24 hr change?



D

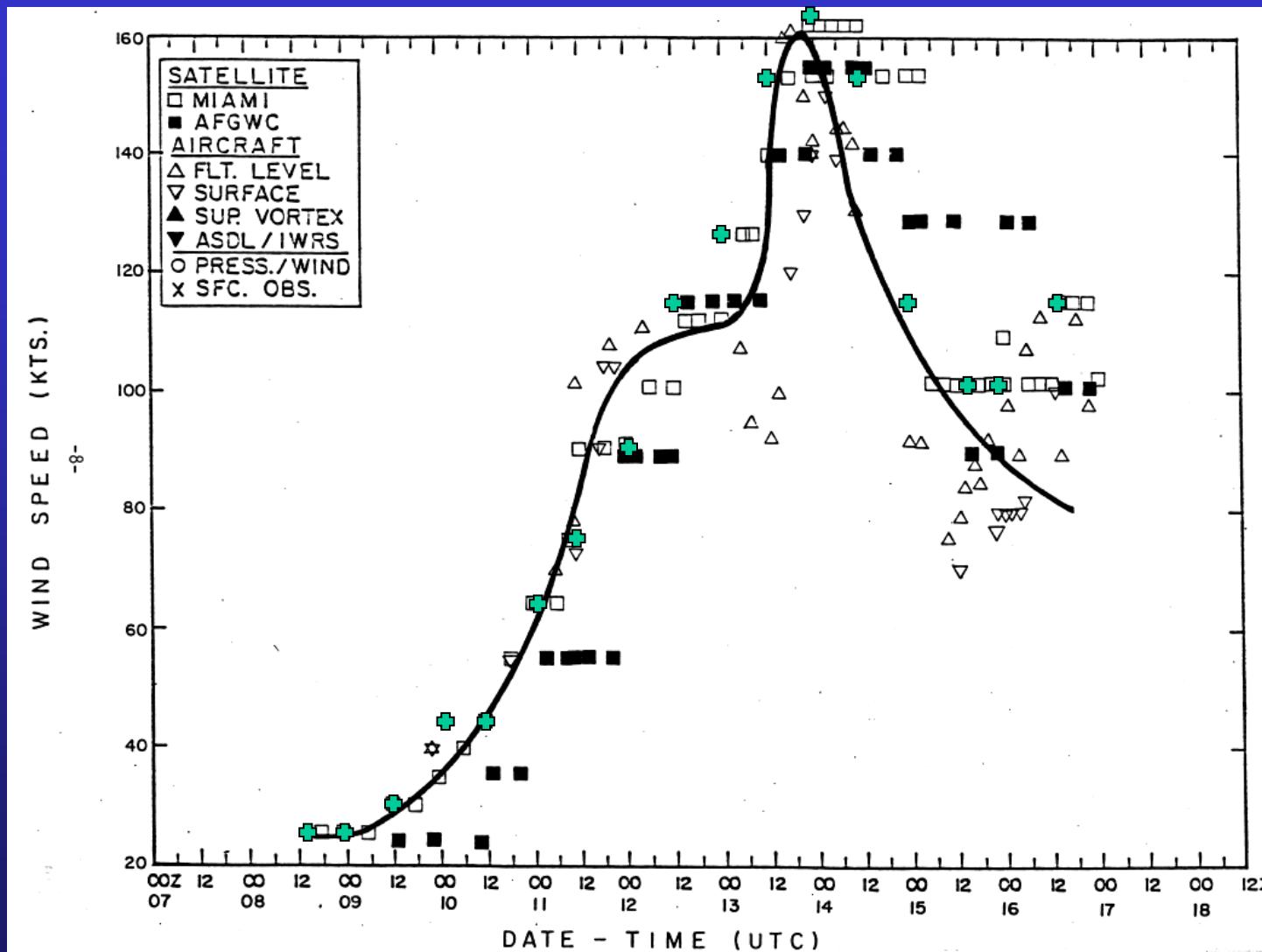


TROPICAL CYCLONE ANALYSIS WORKSHEET

From Vernon F. Dvorak May 1982		T-Number Estimates from Measurements for Data-T (DT) Computation												T-Number Estimates from Model and DT Constraints													
STEP:	1.0	2A, B				2C			2D	2E				3	4	5	6	7, 8	9	10							
Description	Location	Curved Band or Shear				Eye Pattern		Eye # + Eye Adj = Central Feature (CF)		CDO	Embedded Center				CCC	Trend	MET	PAT	FT	CI	24-hour forecast						
Rules:	Locate cloud system center (CSC) at focal point of cloud curvature	Use spiral arc length (tenths) or shear distance (degrees latitude)				(VIS) Use embedded distance (deg. Latitude)	(EIR) Use surrounding temperature (shade on BD curve)	From the VIS and EIR tables and rules		(VIS) Size of Central Dense Overcast (deg. Latitude)	(EIR) Embedded temperature (shade on BD curve)	Data T-Number Computation CF + Banding Feature (BF) = DT			Use rules	24-hr change	From 24-hr old FT and Step 4 trend	From pictographs on the flowcharts	Use rules	Use rules	Adjust model forecast if necessary						
Date/Time (UTC)	Lat. ($^{\circ}$ N)	Lon. ($^{\circ}$ W)	DT1.5 ±0.5	DT2.5	DT3.0	DT3.5	DT4.0	DT4.5														Analyst Initials					
08/1301			0.4															2.5	D	1.0	2.0	1.5	1.5	P	2.5	JLB	
08/2301			NO DT	-	USE RULES													N/A	D	1.5	1.5	1.5	1.5	P	2.5	JLB	
09/1201			0.8°															2.0	D	2.5	2.0	2.0	2.0	P	2.5	JLB	
10/0001			0.65															3.0	D	2.5	3.0	3.0	3.0	P	4.5	JLB	
10/1201			0.65															3.0	D	3.0	3.0	3.0	3.0	P	4.0	JLB	
10/1201																		IRREG 1.5°	2.5+	0.5	3.0+						
11/0001			1.20																4.0	D	3.5	4.5	4.0	4.0	P	5.0	JLB
11/0001				DG	EYE IN	MG	4.5	-0.5										4.0	0.0	4.0							
11/1101				LG	EYE IN	LG/W	5.0+	0.0										5.0+	0.0	5.0+	D	4.0	6.0	4.5	C 6.0	JLB	
11/1101																		LG	4.5+	0.0	4.5+						
11/1201				0.5°			4.0	-0.5										3.5	1.0+	4.5+	D	4.0	5.0	4.5+	C 6.0	JLB	
11/1201				1.5															4.5								
12/0001			OW	EYE IN	LG	5.0	0.0											5.0	0.0	5.0	D+	5.5	5.5	5.0	P 6.0	JLB	
12/1131				WMG	EYE IN	LG/B	5.0	1.0										6.0	0.0	6.0	D+	6.0	5.5	6.0	C 7.5	JLB	
12/1201				0.9°		5.5	0.0											5.5	1.0	6.5	D+	6.0	5.5	6.0	C 7.5	JLB	
13/0001			OW	EYE IN	B/W	5.5+	0.5											6.0+	0.5	6.5+	D+	6.5	6.5	6.5+	C 8.0	JLB	
13/1201				DG	EYE IN	CMG	6.5	0.5***										7.0	0.5	7.5	D+	7.5	7.0	7.5	C 8.0	JLB	
13/1231				0.9°		5.5	0.5***											6.0	1.5	7.5	D+	7.5	7.0	7.5	C 8.0	JLB	
14/0001			WMG	EYE IN	CMG	6.5	1.0										7.5	0.5	8.0	D+	8.0	7.5	8.0	G? ???	JLB		
14/1201			DG	EYE IN	W/CMG	6.0	0.5***										6.5	0.0	6.5	W	6.5	7.0	6.5	7.5	??? JLB		
14/1231			0.7°		5.0	0.0											5.0	2.0	7.0	W	6.5	7.0	6.5	7.5	??? JLB		

TROPICAL CYCLONE ANALYSIS WORKSHEET

What storm was this?



Hurricane Gilbert, September 1988