

# Instrumentation and Science at Jicamarca and LISN for CAWSES- II TG4

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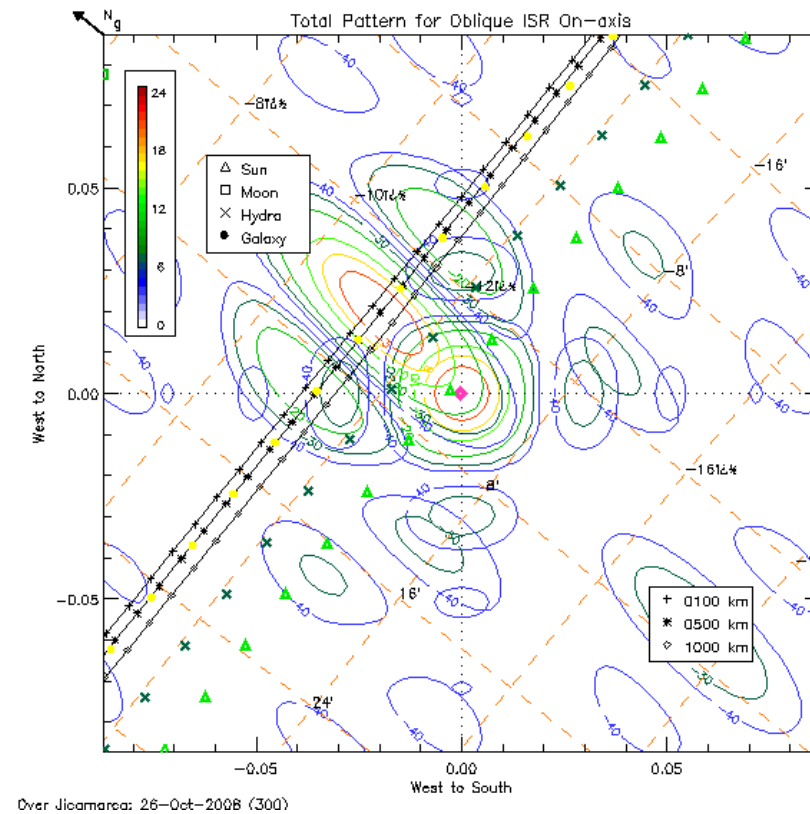
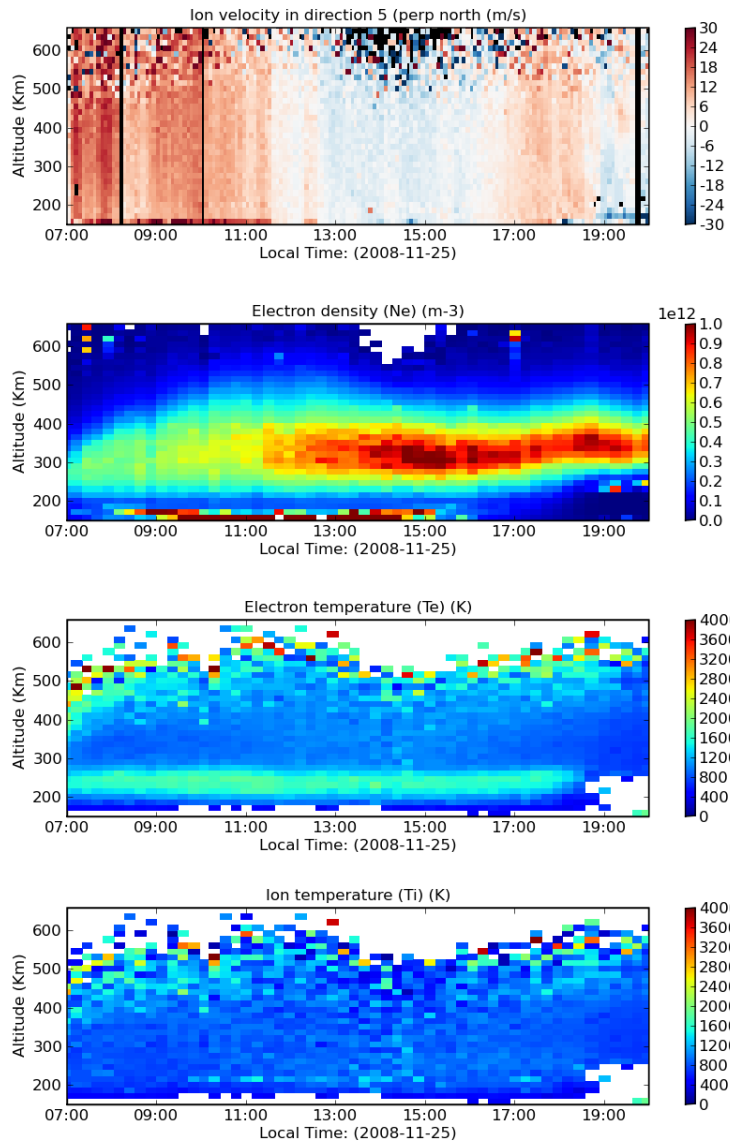
# CAWSES II Task Group 4

- What is the geospace response to variable inputs from the lower atmosphere?
  - Project 1: How do atmospheric waves connect tropospheric weather with ITM variability?
  - Project 2: What is the relation between atmospheric waves and ionospheric instabilities?
  - Project 3: How do the different types of waves interact as they propagate through the stratosphere to the ionosphere?
  - Project 4: How do thermospheric disturbances generated by auroral processes interact with the neutral and ionized atmosphere?

# JRO-LISN Clustered Instruments

Instrument	Parameter	Region	Time Coverage	Annual Coverage	Regional Coverage	TG4 Projects
ISR	Ne, Te, Ti, Vz, Vx, %	Ionosphere	24	1000 hours	JRO	1,2,3,4
MST	U,V,W	Troposphere, Stratosphere, Mesosphere	24 (T,S), daytime (M)	> 10 days	JRO	1,3
JULIA	Irregularity intensity, Vz, Vx	Ionosphere	24	4000 hours	JRO	2,3
JULIA-150	Vz	Ionosphere	Daytime	150 days	JRO	1,3,4
FPI (AQP, SOFDI, MRH)	U,V, Tn	Bottom <i>F</i> region	Nighttime Daytime (SOFDI)	> 100 days	Peru	2
Magnetometers (JRO, LISN)	Vz	Ionosphere	Daytime	365 days	77°, 75°, 69°, 56° West	1,3,4
LISN GPS	TEC, scintillations	Ionosphere	24	365 days	South America	1,2,3
Ionosondes (JRO, LISN)	TEC, scintillations	Ionosphere	24	365 days	77°W, 69°W	1,2,3
JASMET-Meteors	U, V	Mesosphere	24	Campaigns	JRO, Piura, HYO (*)	1,3

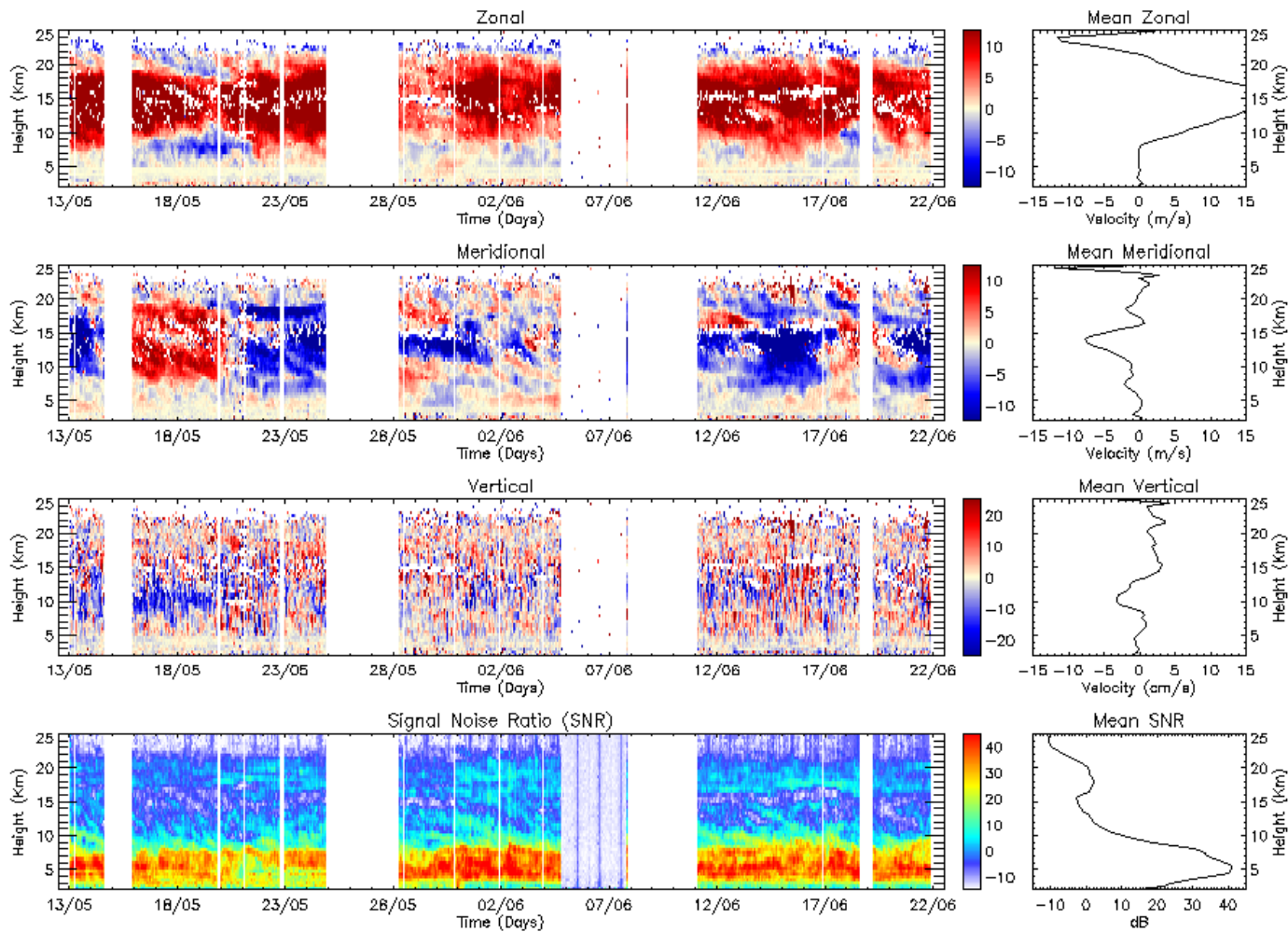
# ISR Oblique + Perpendicular (“Odile” Mode)



**Oblique:** Two txs, two polarizations, NS quarters  
**Perpendicular:** One tx, two polarizations, EW quarters

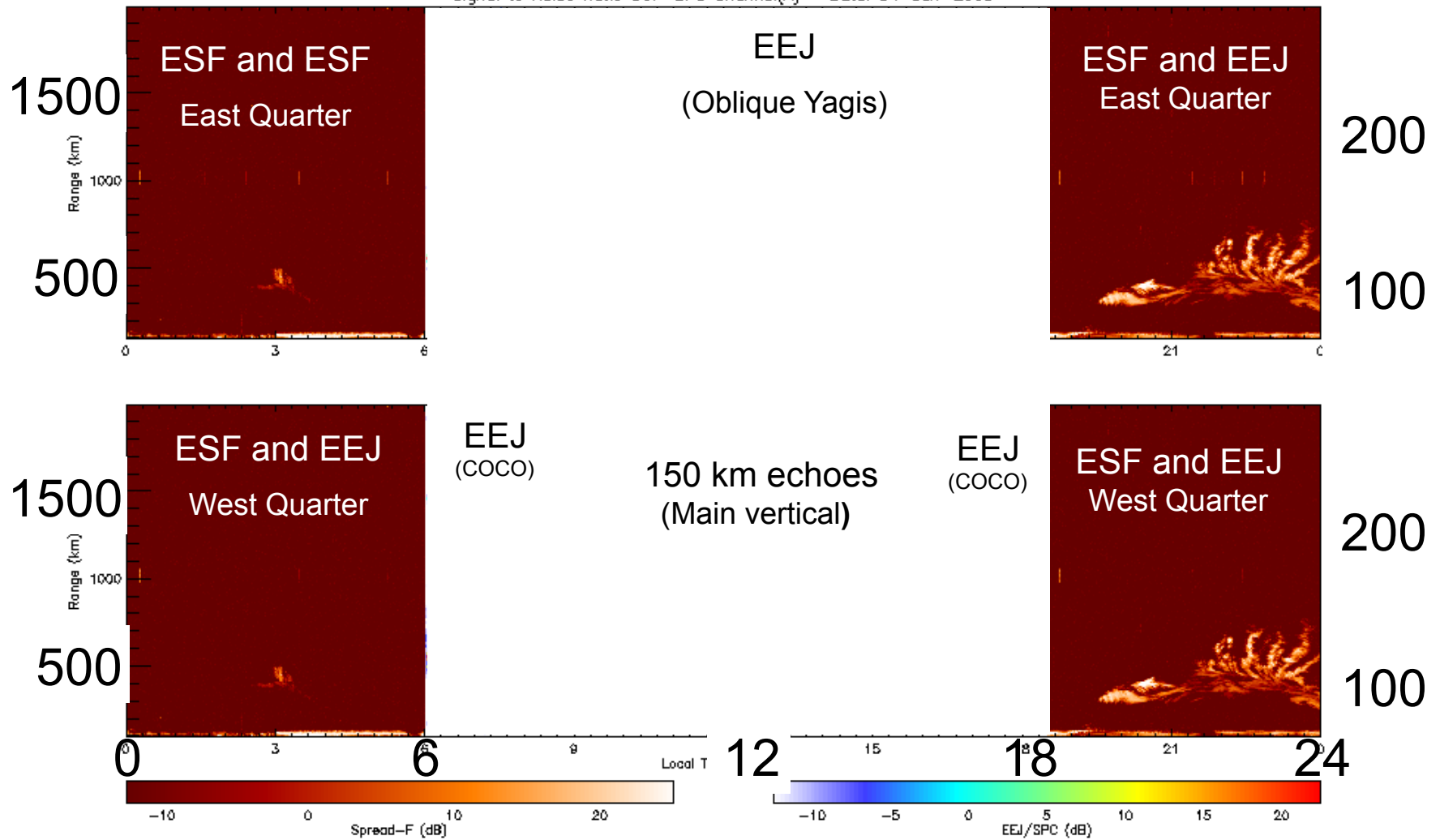
# MST: Lower Atmosphere Winds

WINDS OVER JICAMARCA (MST) – DATE: 13-May-98 to 22-Jun-98

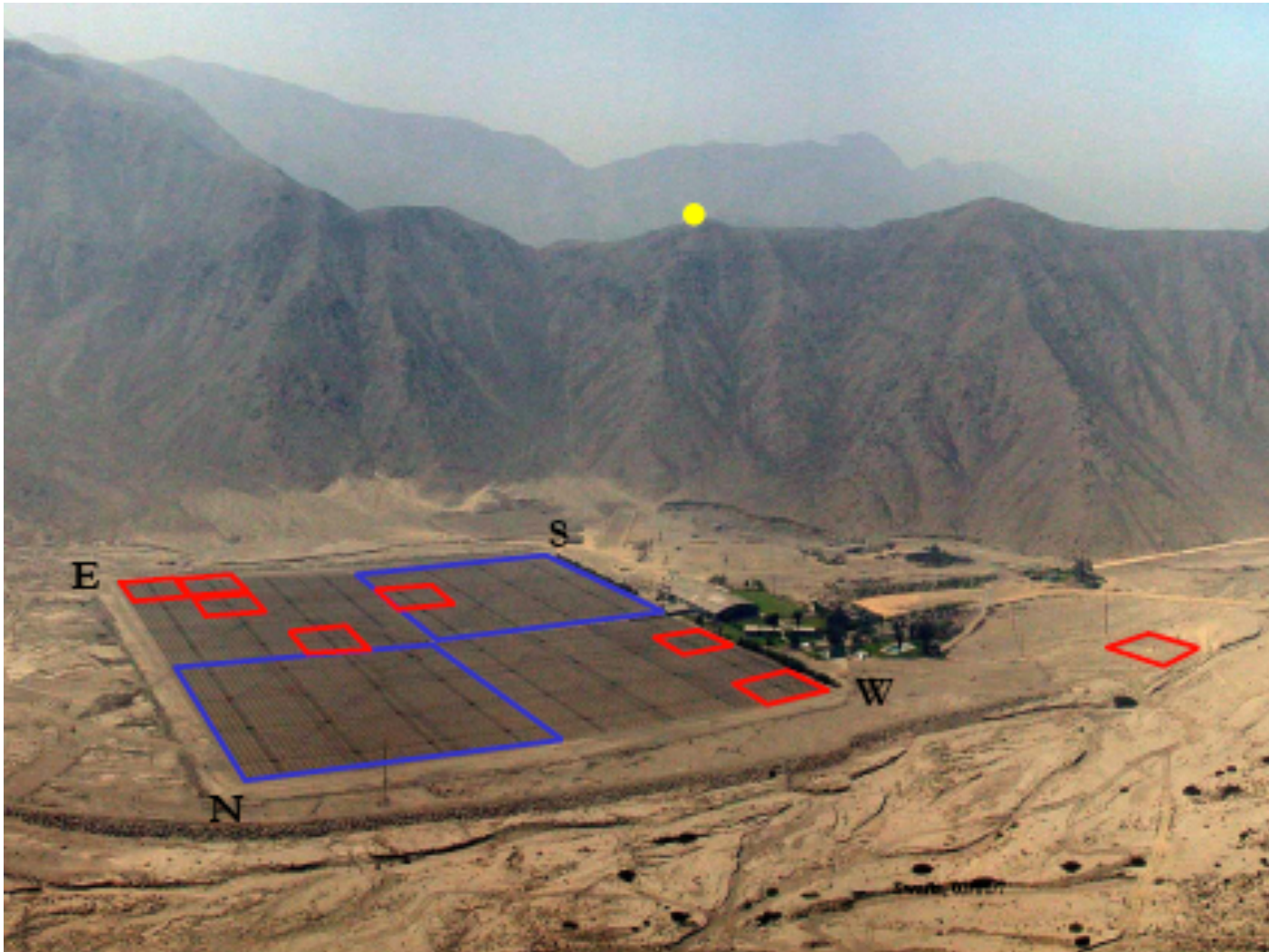


# JULIA Observations

Signal to Noise Ratio CCF-SPC Channel(A) - Data: 04-Jan-2003

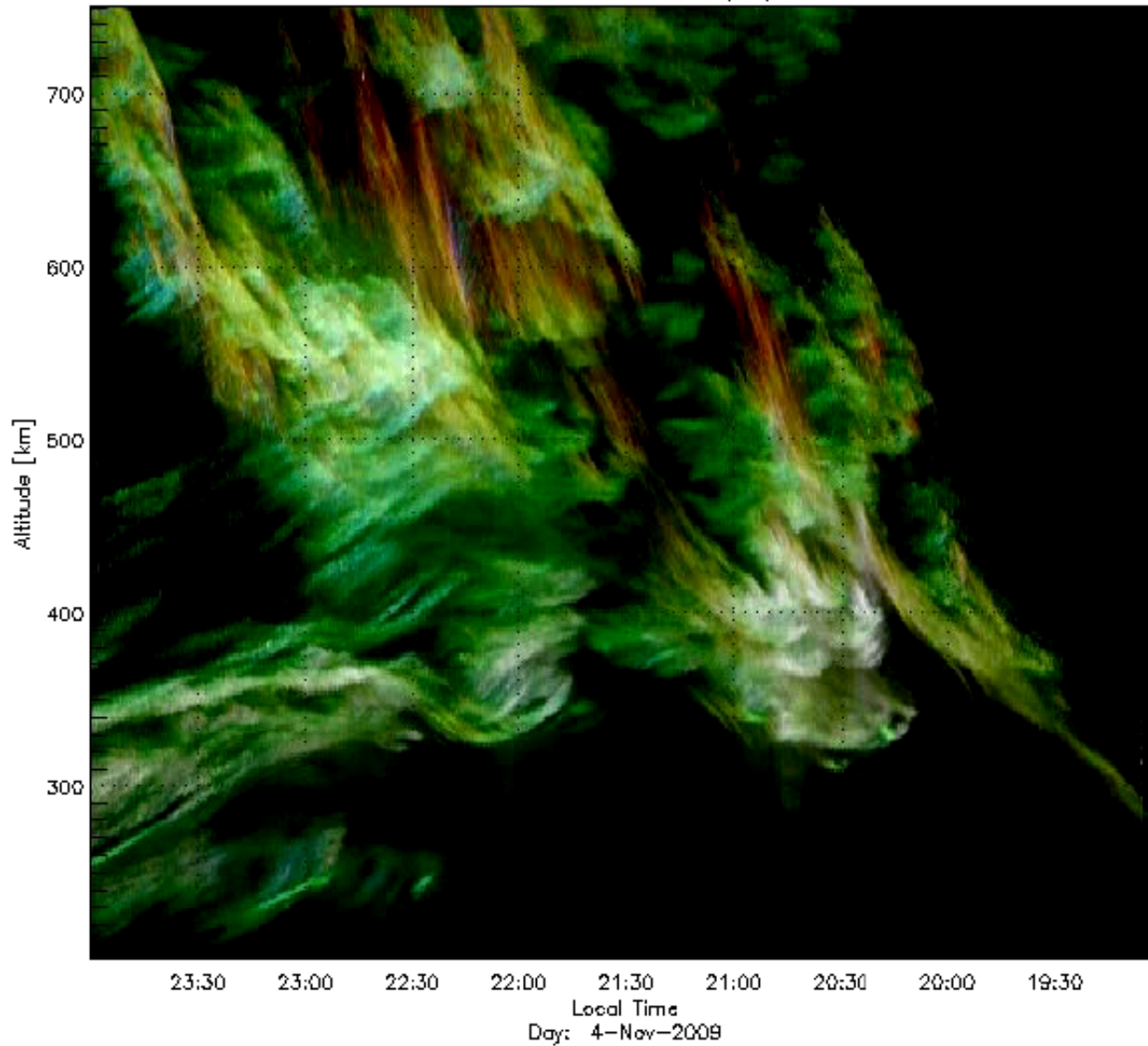


# JULIA - Imaging (1)

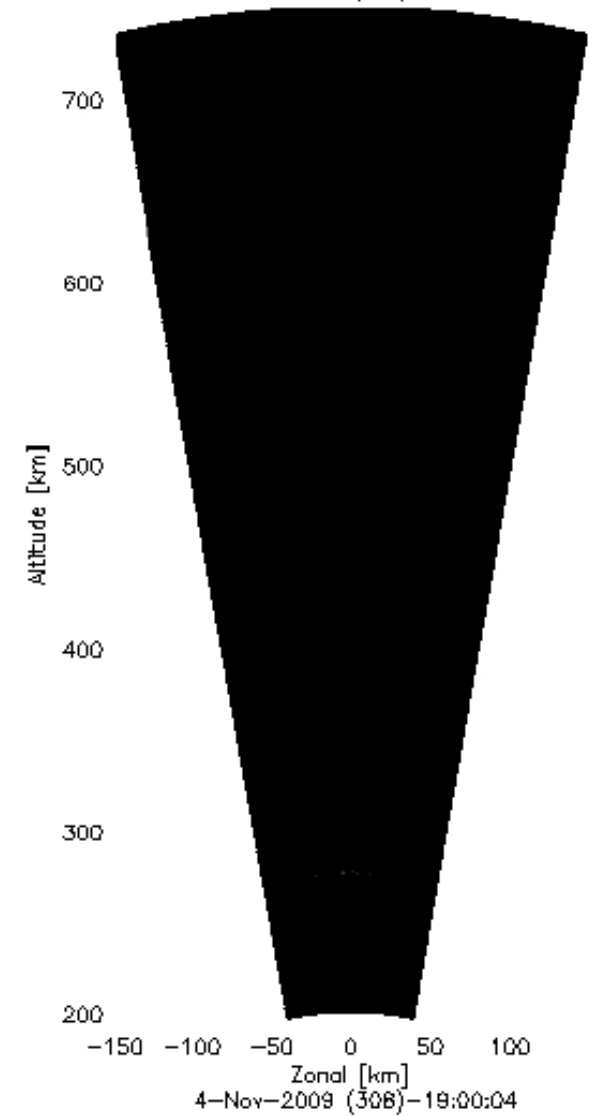


# JULIA - Imaging (2)

RTDI over JRD ESF (ME)

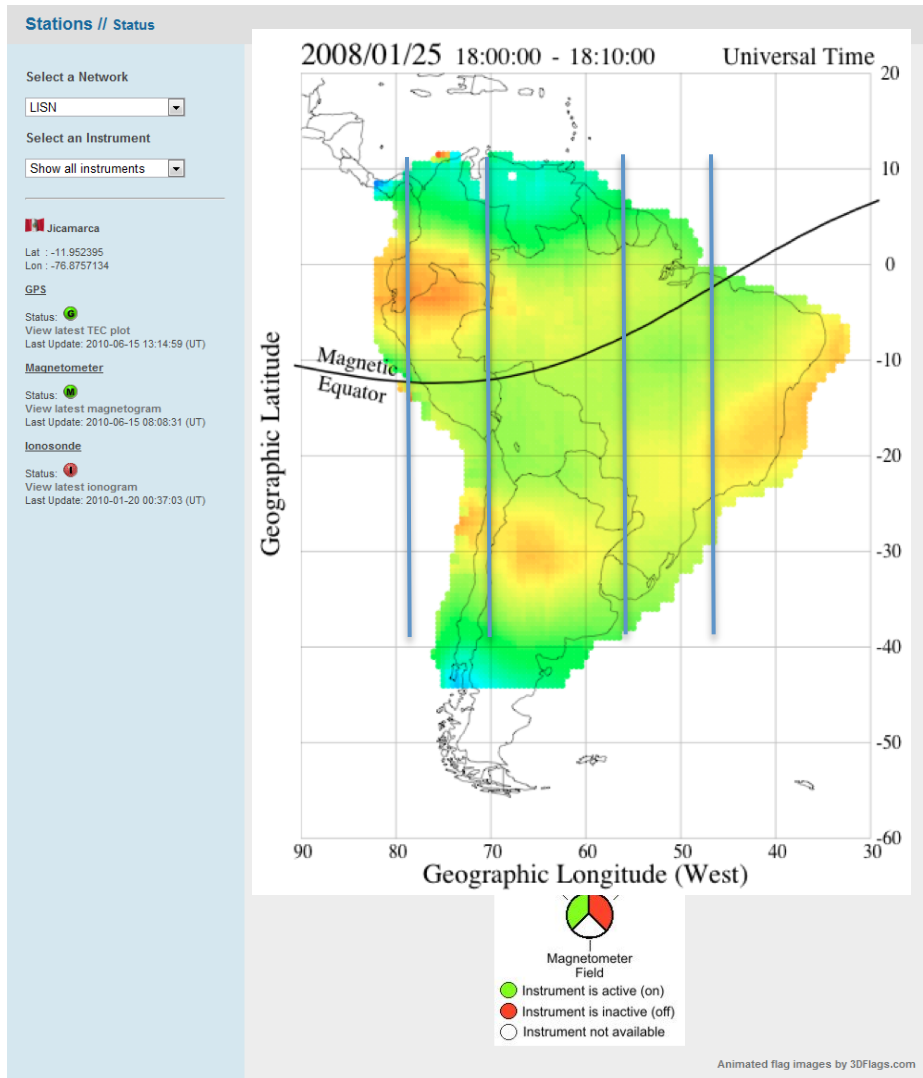


ESF (ME)





# LISN: Instruments + Database



## Data // GPS

### Login

Username

Password

You can only browse the GPS database, to download files you need an account.

### Look for Station

LISN

Peru

Piura

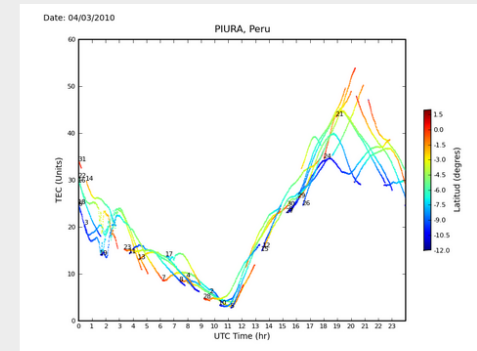
2010

March

March						
S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

### Daily files

File name	File size	View plots
Total Electron Content (TEC) piur_100304.dat.gz	545.96 kB	Vertical TEC
Rinex Observation file piur_100304.10d.tar.gz	342.08 kB	
Scintillation (S4 index) piur_100304.scn.gz	81.24 kB	S4 index, S4 index in Skymap
Position piur_100304.pos.gz	388 Bytes	Receiver Position
Binary piur_100304.mvd.gz	2.00 MB	



<http://200.60.148.173/lisn/gps>

# JRO Databases: ISR, JULIA, $\Delta H$

## JRO Madrigal data access

Instrument:

Jicamarca IS Radar 1994-2009

Experiment:

All experiments

Year:

2009

Month:

May

May 2009

Sun	Mon	Tue	Wed	Thu	Fri	Sat
26	27	28	29	30	01	02
03	04	05	06	07	08	09
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	01	02	03	04	05	06

## Simple Madrigal data access - select option...

Selected Instrument:

Jicamarca IS Radar

Selected Experiment:

Drifts

Selected dates:

2009-05-13

plot Data

print Data

download File

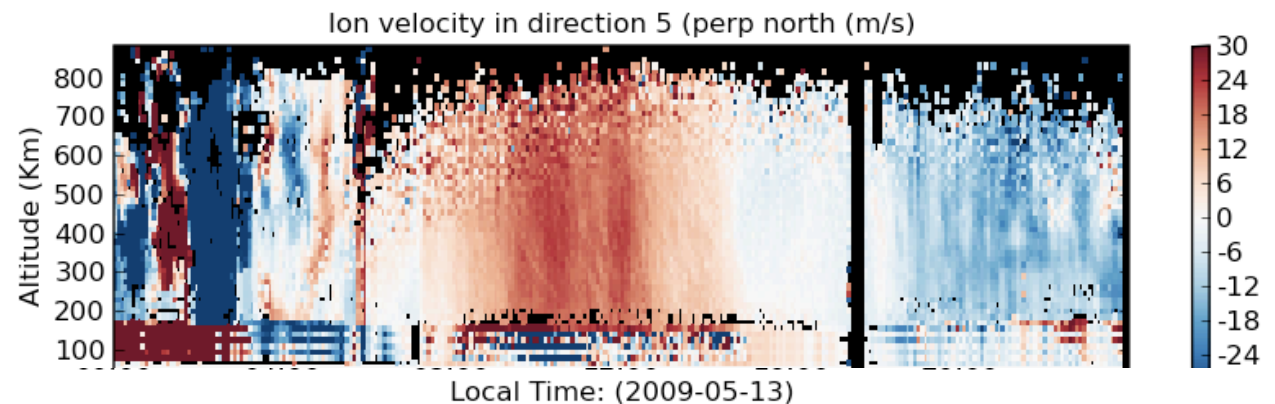
view Header&Catalog

Choose parameter to plot:

Ion velocity in direction 5 (perp north)

Select y axis:

Altitude



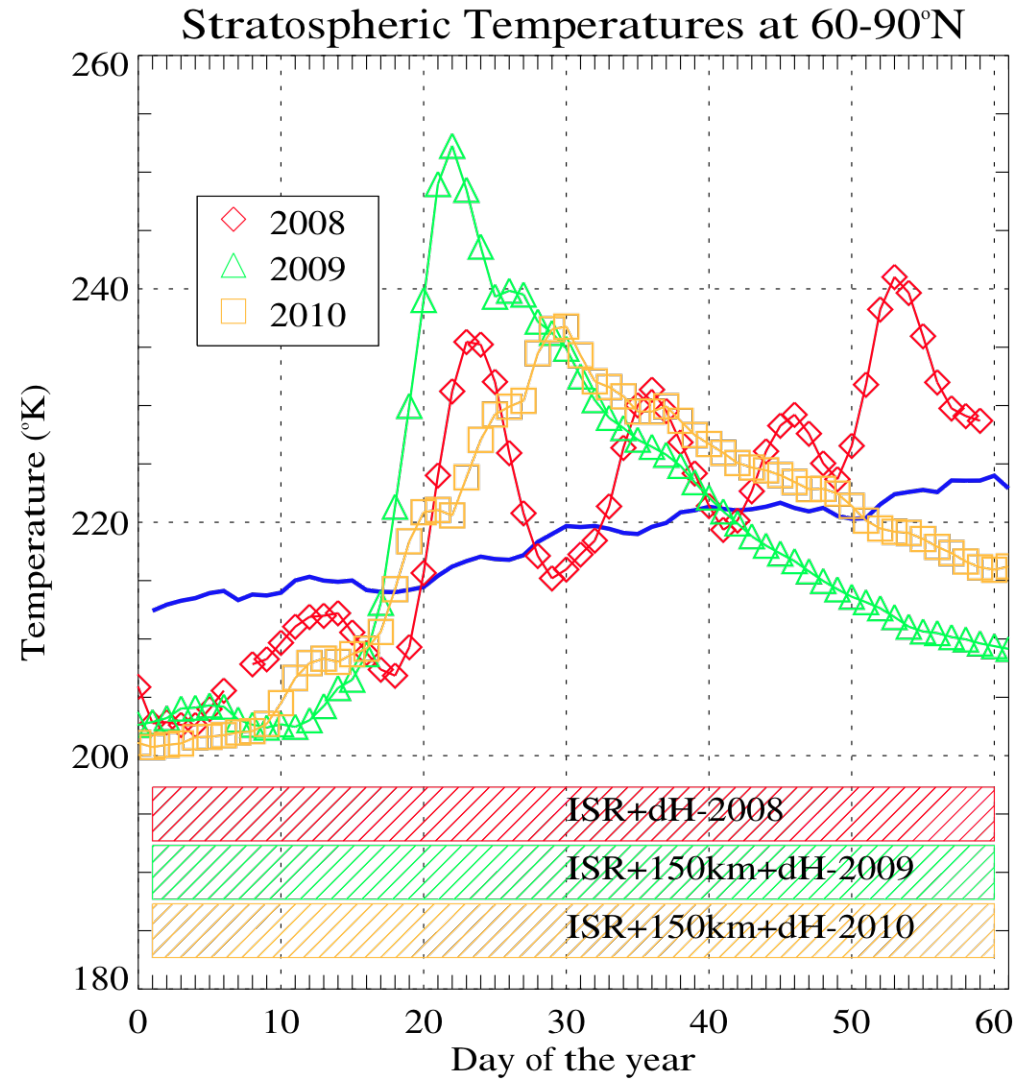
## Advanced Filters

Time:	00 - 24	<input type="radio"/> Time-Average
Altitude:	0.0 - 885.0	<input type="radio"/> Height-Average
ColorMap Range:	-30.0 - 30.0	<input checked="" type="radio"/> Disabled-Average

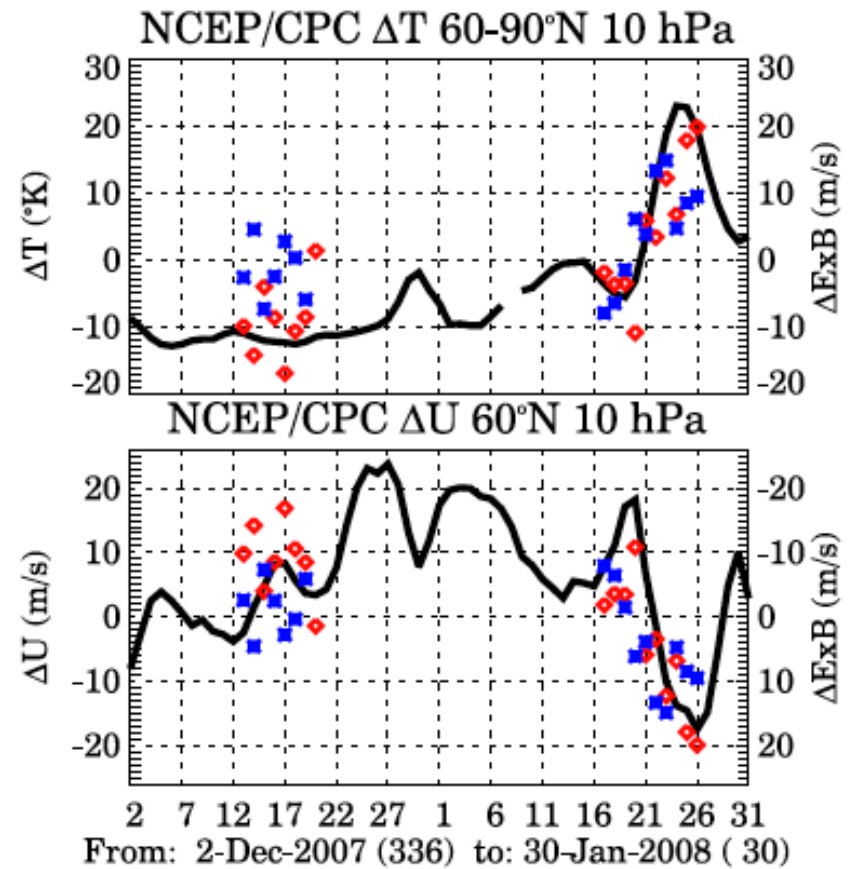
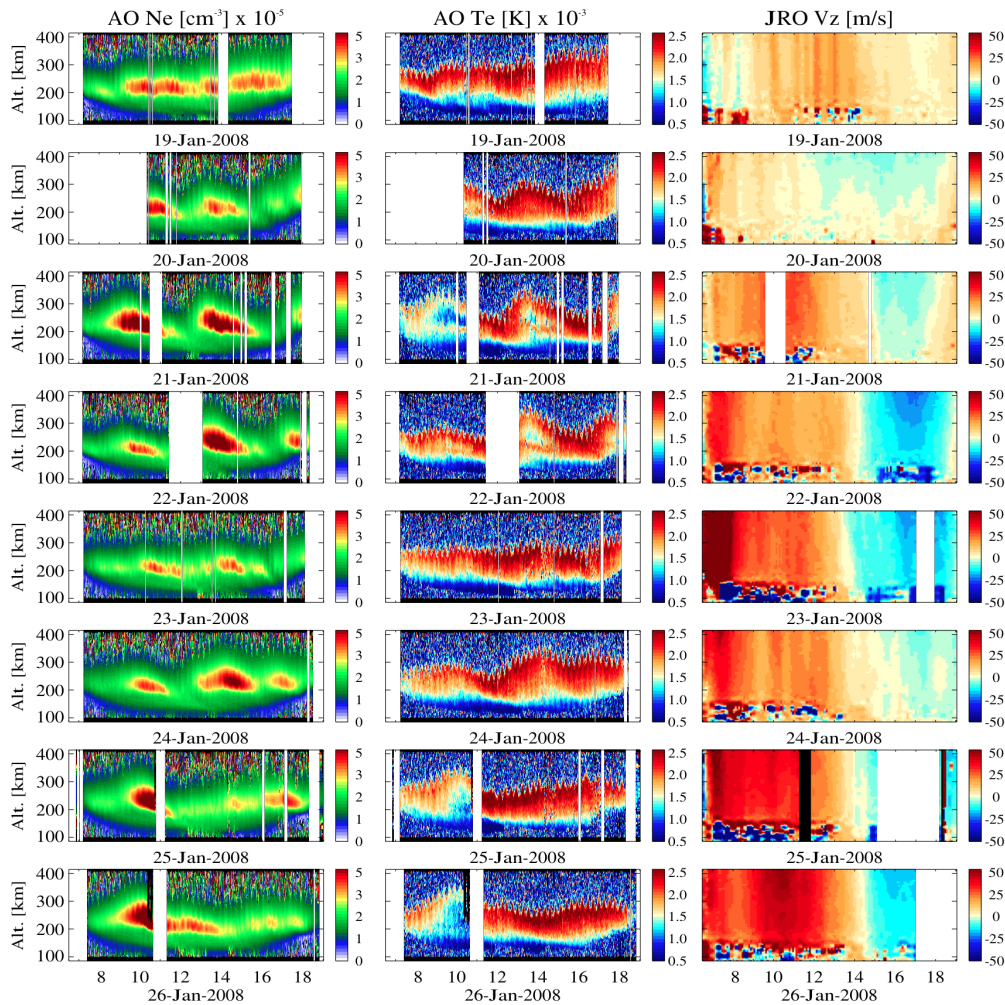
Apply

Reset

# SSW Events: 2008, 2009, 2010

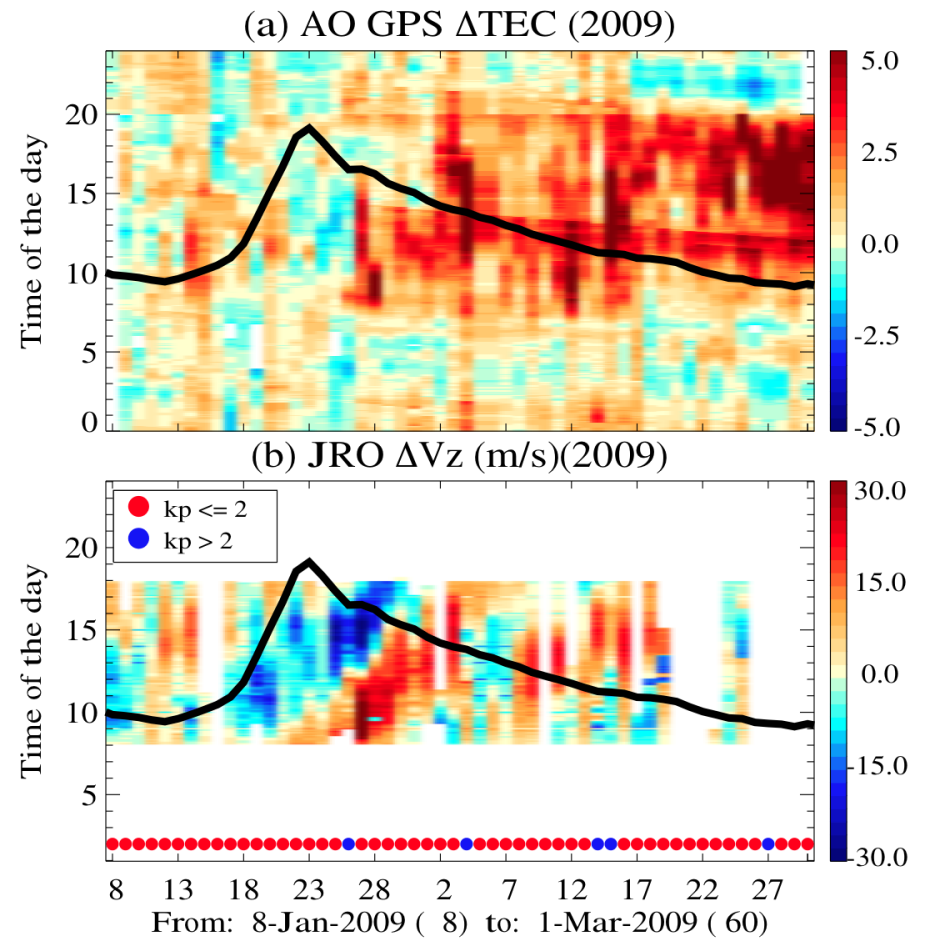
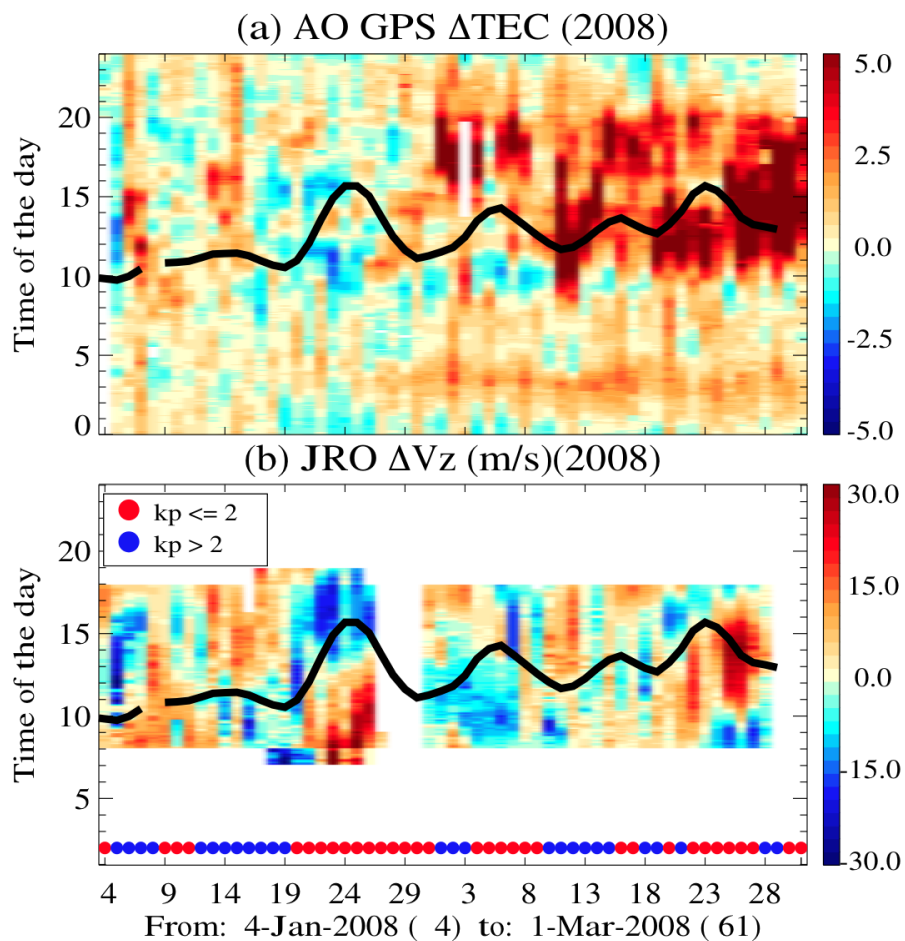


# SSW 2008: ISR Jicamarca-Arecibo



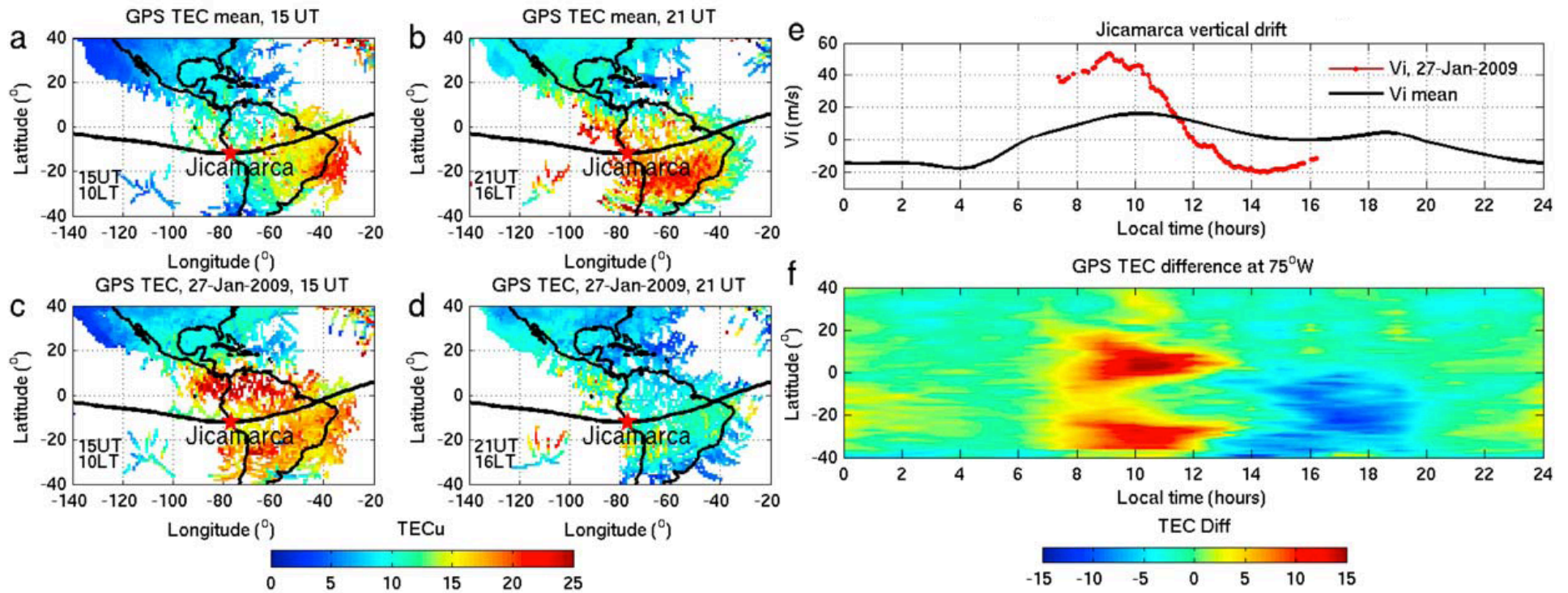
[Chau et al., 2009]

# AO $\Delta$ TEC - JRO $\Delta$ Vz - SSW T

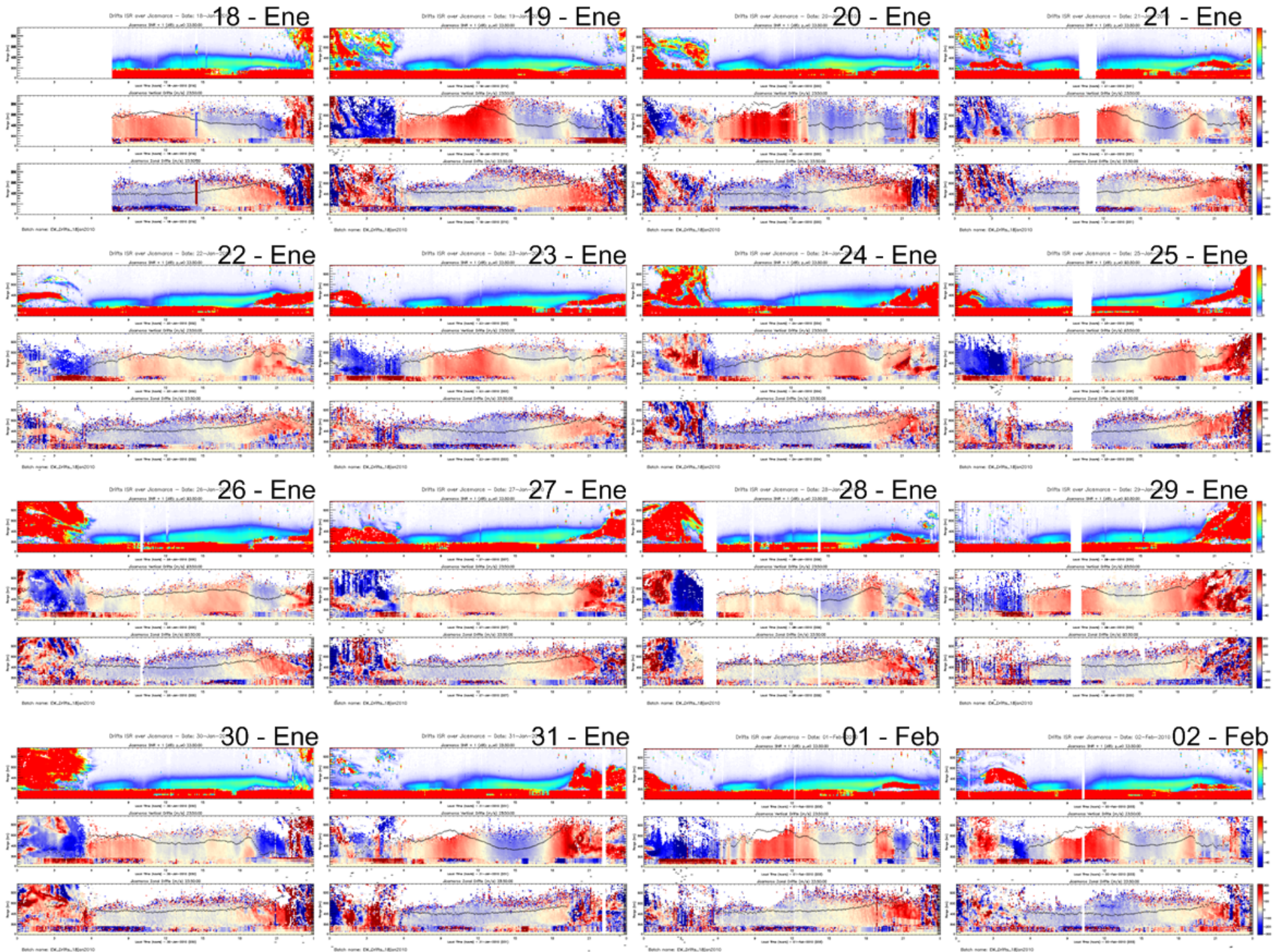


[Chau et al., 2010]

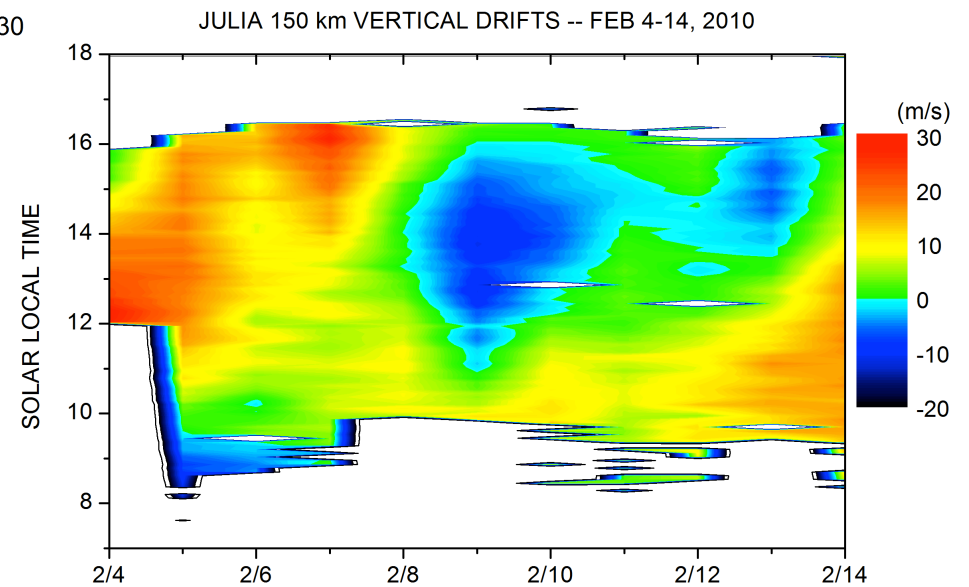
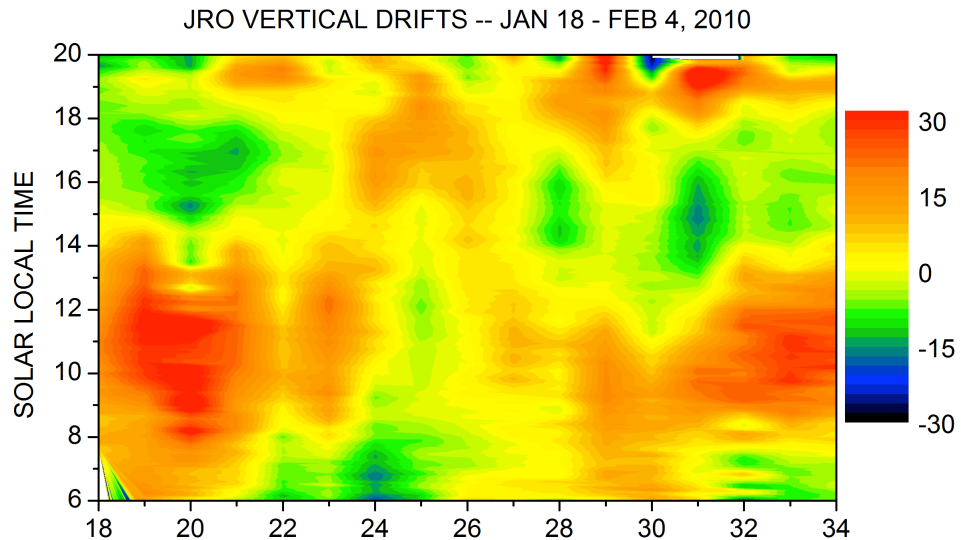
# SA TEC during SSW



[Goncharenko et al., 2010]



# JRO ExB Drifts: Jan-Feb 2010



[Courtesy: M. Olson and B. Fejer]