

# RED DE INTERFEROMETROS FABRY-PEROT EN PERU PARA ESTUDIOS DE AERONOMIA

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- Motivación Científica
- Red FPI en Perú
  - Localización
  - Instrumentación
  - Resultados





- Estudiar la dinámica neutra como componente importante en procesos atmosféricos
  - Observaciones ISR-FPI
  - Mediciones de actividad de gravity wave para estudiar su relación con la generación de ESF.
- Determinar la evolución de fenómenos en la alta atmosfera en respuesta a tormentas magnéticas, actividad solar, etc.
- Proveer un repositorio central de data procesada para alimentar modelos y así tener predicciones en Climatología Espacial.

# Master Program

## Sistema FPI

- Read and execute scripts
- Convert script into commands
- Send messages to Camera, Observatory and Analysis.
- Manage files

Acq start 5/4/2008 00:02:43.460  
Copy start 5/4/2008 00:03:18.648  
az = 90.0° ze = -87.8° T = -79° Tag=L  
Digital inputs: 0 1 1 1 0 1 1 1  
Exp rq / act = 30.000 / 30.000 sec  
512 x 512 pixels, binned 2 x 2;  
total image size is 131072 bytes  
Etalon temperature = 21.90 deg C  
Etalon pressure = 0.391 volts  
Aux00 = 3.052 Aux06 = 0.000  
Aux01 = 4.905 Aux07 = 0.000  
Aux02 = 6.846 Aux08 = 0.000  
Aux03 = 0.000 Aux09 = 0.000  
Aux04 = 0.000 Aux10 = 0.000  
Aux05 = 0.000 Aux11 = 0.000

### Camera Program

- Control CCD Andor camera
- Capture images

### Analysis Program

- Show images in real time
- Modify analysis parameters

### Observatory Program

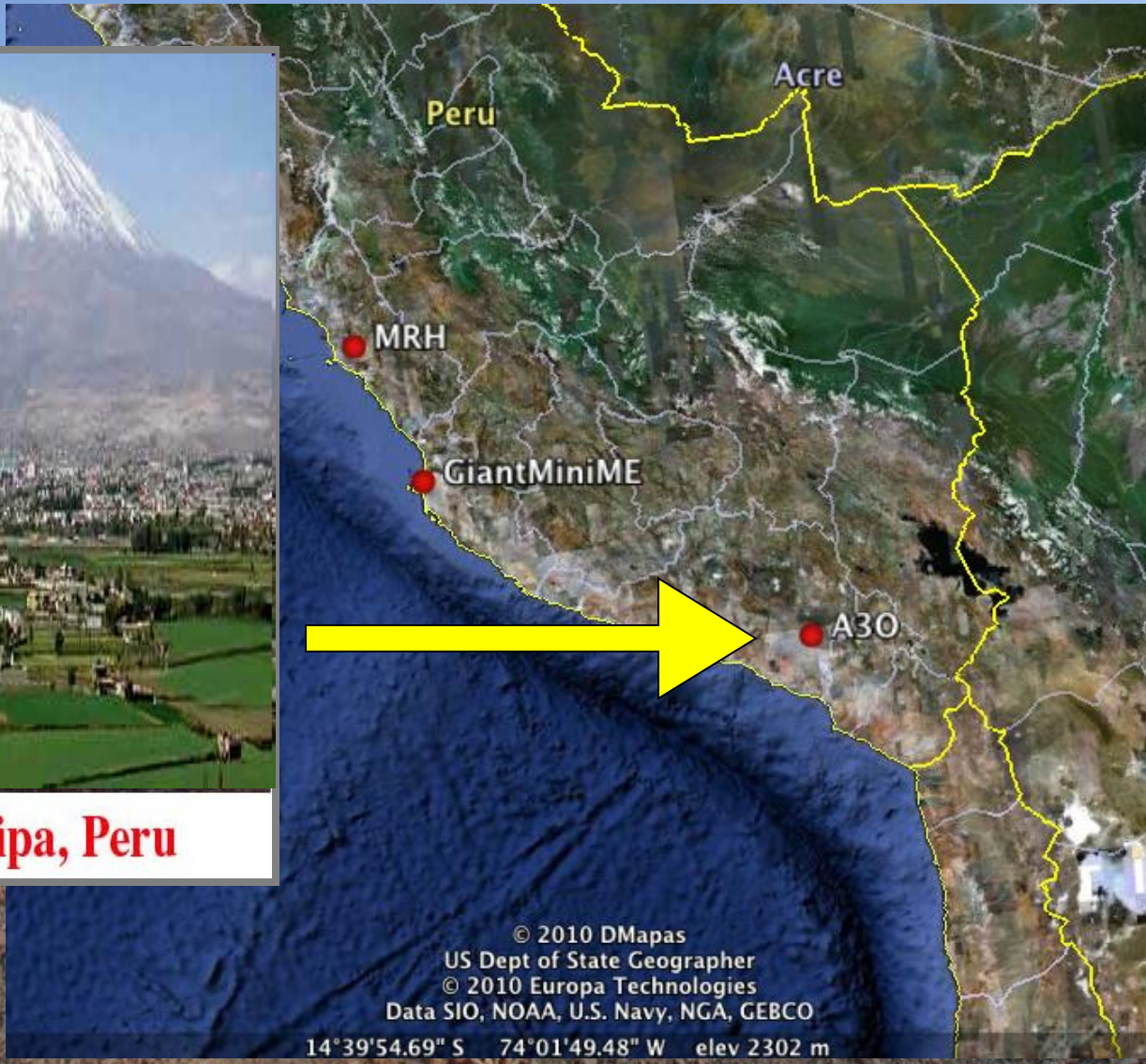
- Control pointing head, interchange filter and shutter



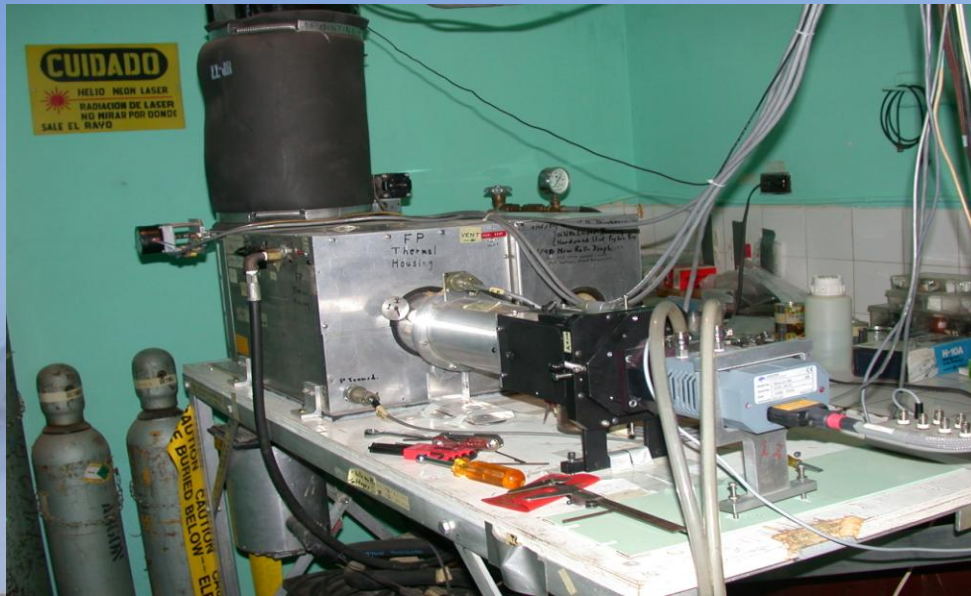
# Red FPI en Peru



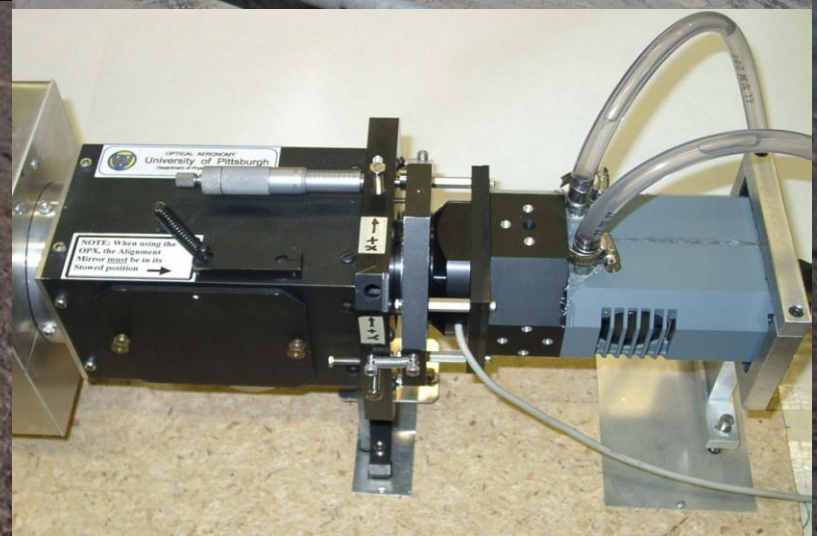
**Arequipa, Peru**





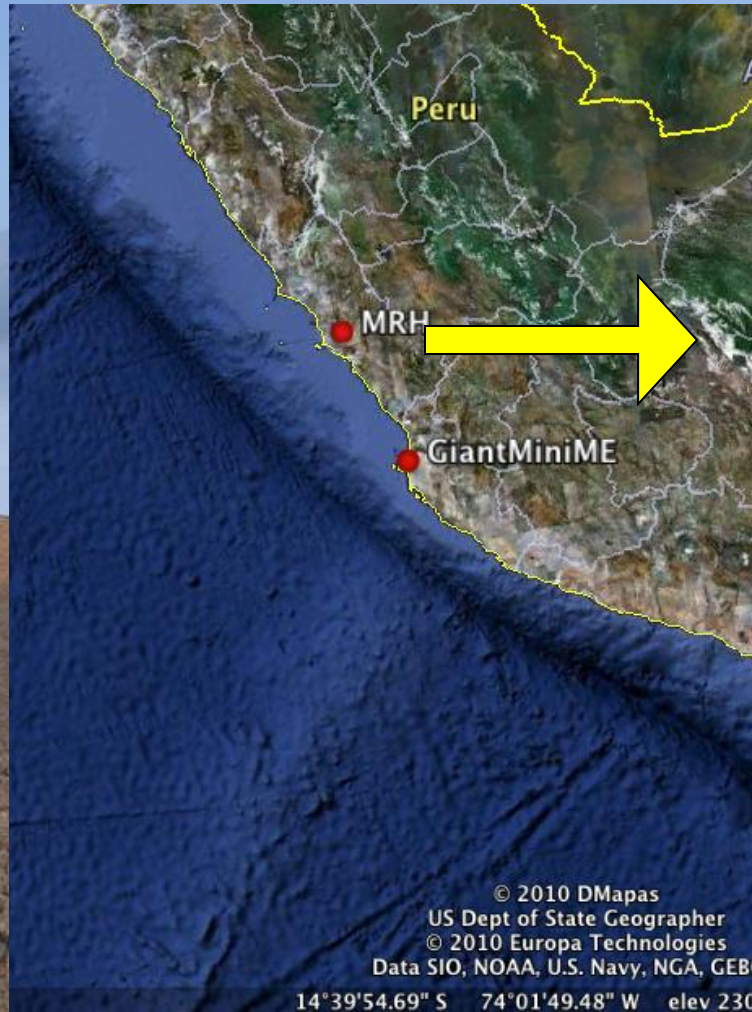


Apertura de Etalon: 10cm  
Distancia entre espejos: 1 cm  
Cámara sellada con gas Argon  
CCD Andor DU434, 52 $\mu$ m, 1024\*1024  
Lente de enfoque 54.5 cm  
Filtros OI 630nm and 732nm





# Jicamarca FPI



Jicamarca, Perú





Apertura de Etalon: 7.5cm

Distancia entre espejos: 1.5 cm

Etalon sólido sellado con aire

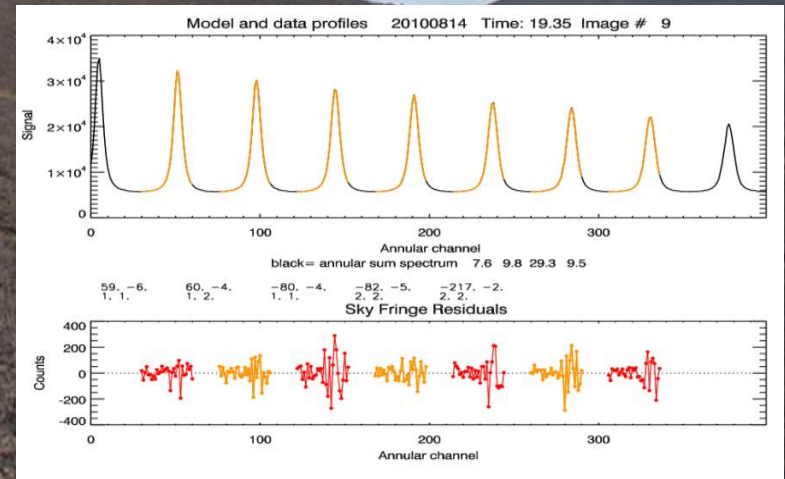
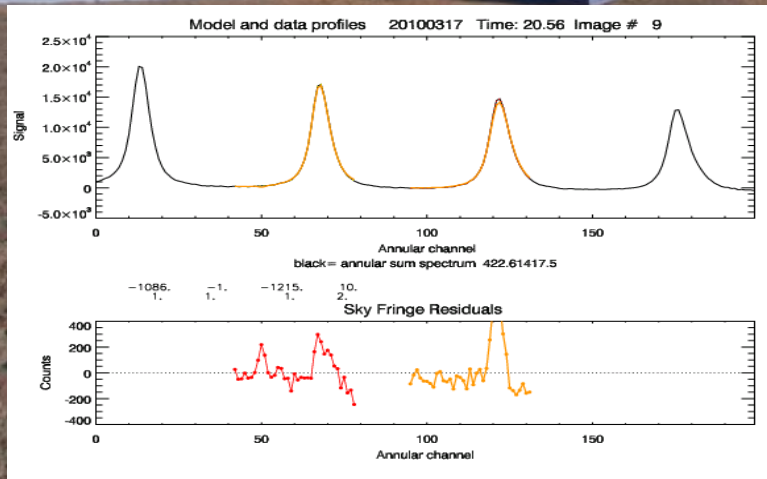
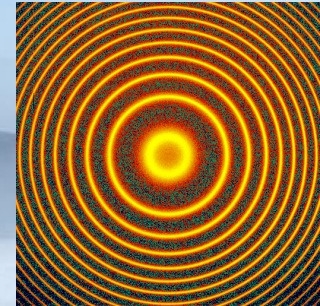
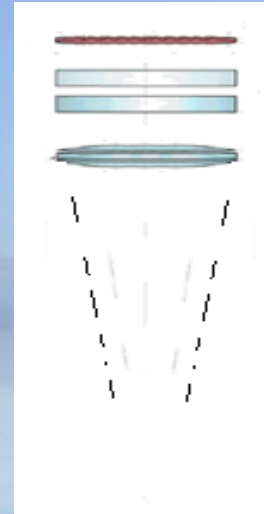
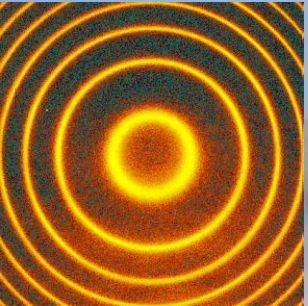
CCD Andor DU434, 52 $\mu$ m, 1024\*1024

Lentes de enfoque 31.5 cm

Filtro OI 630nm

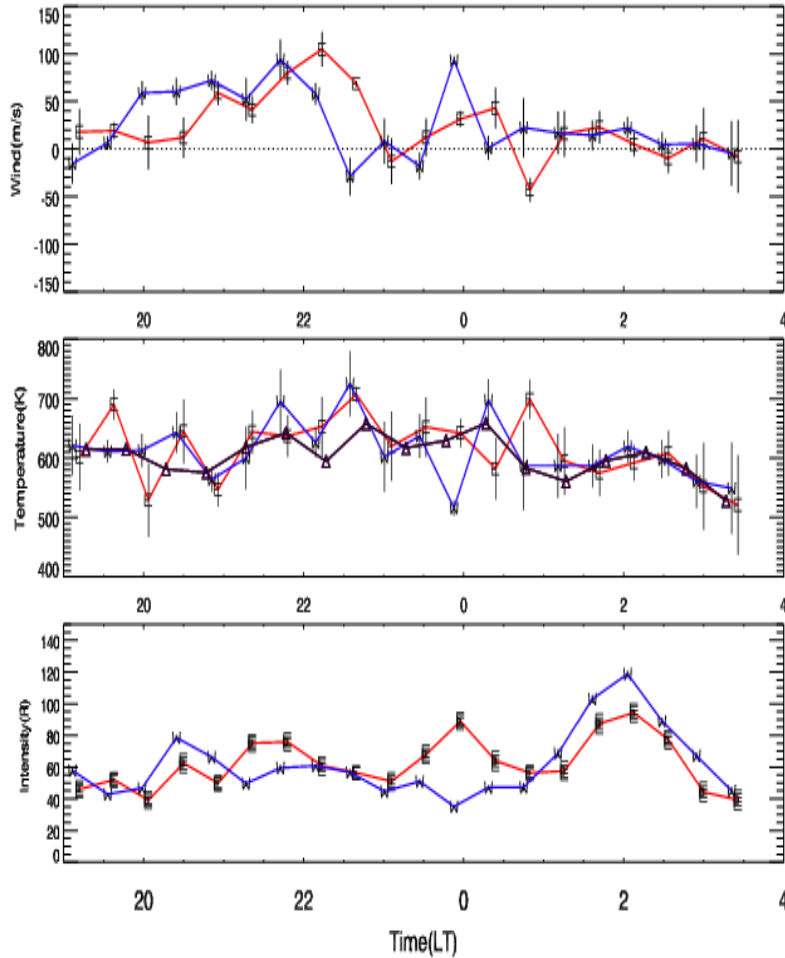




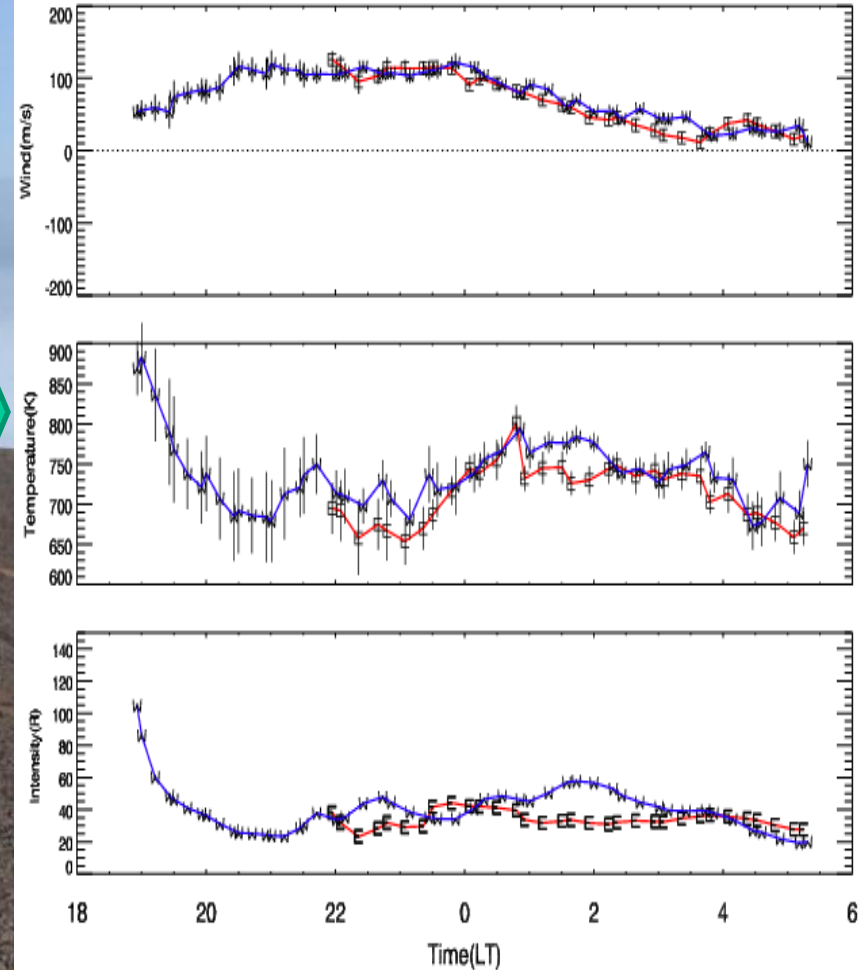




MRH East-West winds and temperatures 15-16 Sep 2009



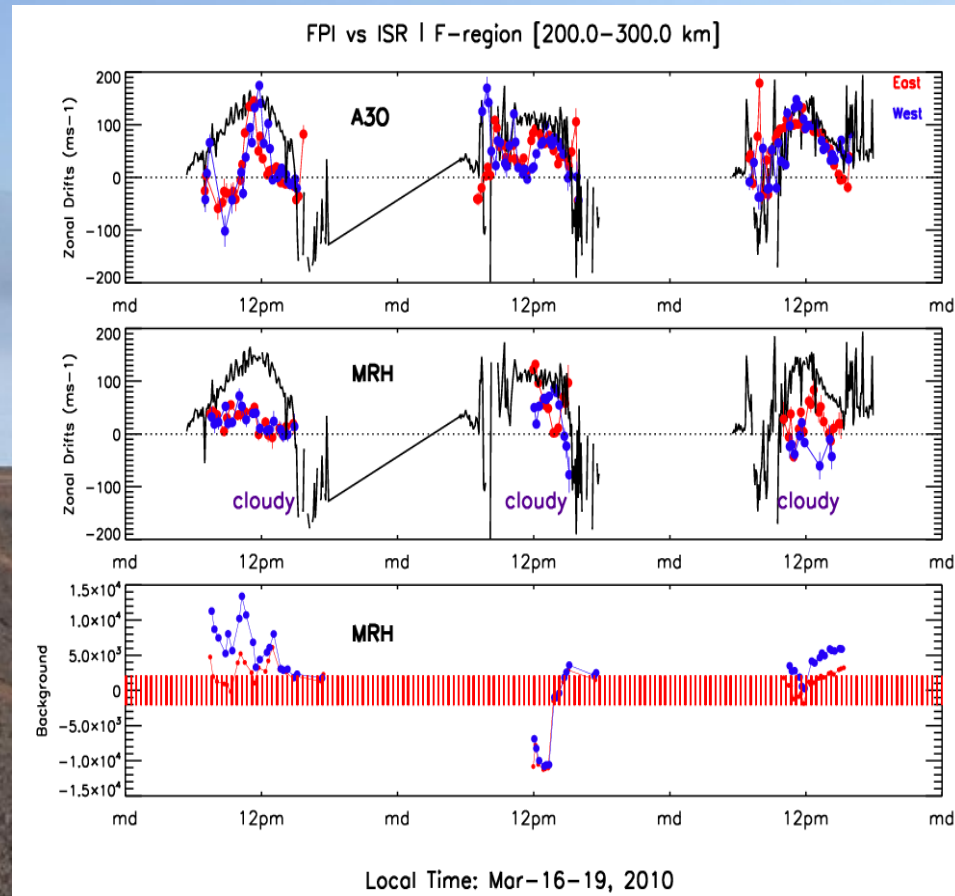
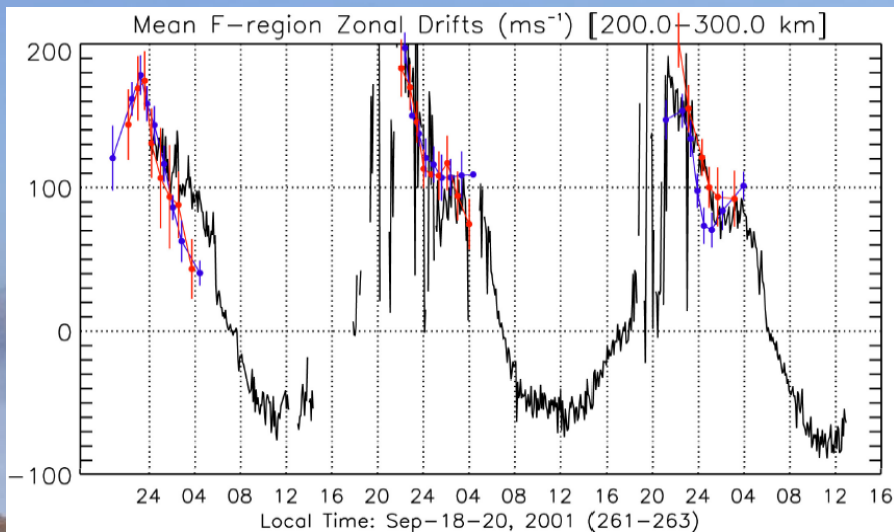
MRH East-West winds and temperatures 14-15 Aug 2010





Campaña 18-20 Sep 2009

Campaña 16-19 Mar 2010



## Control de calidad de datos en MRH:

- Factores Ambientales (Nubes) -> Prueba de Background
- Errores Mecánicos (SkyScanner) -> programa de mantenimiento



# Paracas FPI









# Peru FPI network



Inclinación Zenith:  
**45deg: 247km**  
(CV range)

Inclinación Zenith:  
**60deg: 431km**  
(Maximum range)

Inclinación Zenith:  
**30deg: 144km**





HOME

Look for Station

mrh

fpi

2010

October

October

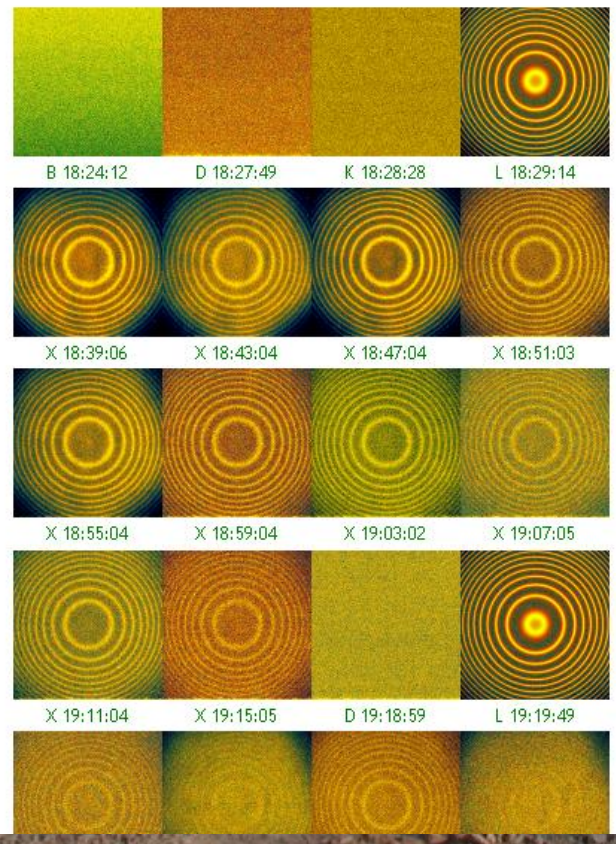
S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

Direction Selector

CV1 <input checked="" type="checkbox"/>	N <input checked="" type="checkbox"/>	CV2 <input checked="" type="checkbox"/>
W <input checked="" type="checkbox"/>	Zen. <input checked="" type="checkbox"/>	E <input checked="" type="checkbox"/>
CV3 <input checked="" type="checkbox"/>	S <input checked="" type="checkbox"/>	CV4 <input checked="" type="checkbox"/>
K <input checked="" type="checkbox"/>	B <input checked="" type="checkbox"/>	D <input checked="" type="checkbox"/>
	L <input checked="" type="checkbox"/>	

Refresh

### FPI Database 25-10-2010 - MRH Station



HOME

Look for Station

mrh

fpi

2010

October

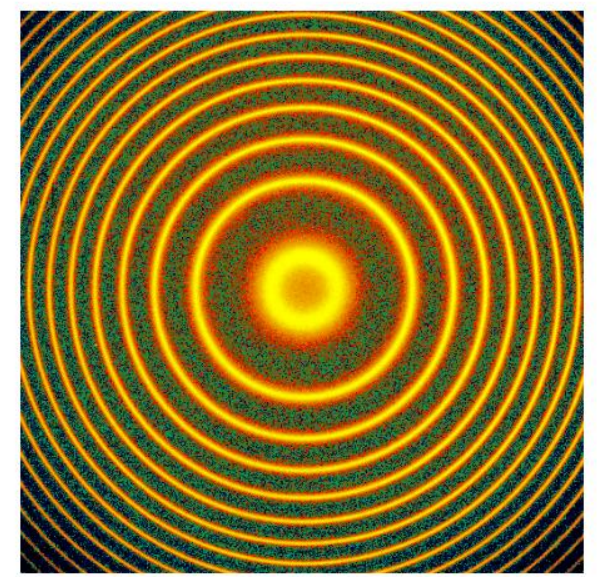
October

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						

Direction Selector

CV1 <input checked="" type="checkbox"/>	N <input checked="" type="checkbox"/>	CV2 <input checked="" type="checkbox"/>
W <input checked="" type="checkbox"/>	Zen. <input checked="" type="checkbox"/>	E <input checked="" type="checkbox"/>
CV3 <input checked="" type="checkbox"/>	S <input checked="" type="checkbox"/>	CV4 <input checked="" type="checkbox"/>
K <input checked="" type="checkbox"/>	B <input checked="" type="checkbox"/>	D <input checked="" type="checkbox"/>
	L <input checked="" type="checkbox"/>	

### FPI Database 25-10-2010 - MRH Station





**GRACIAS**

**Noviembre 2010**