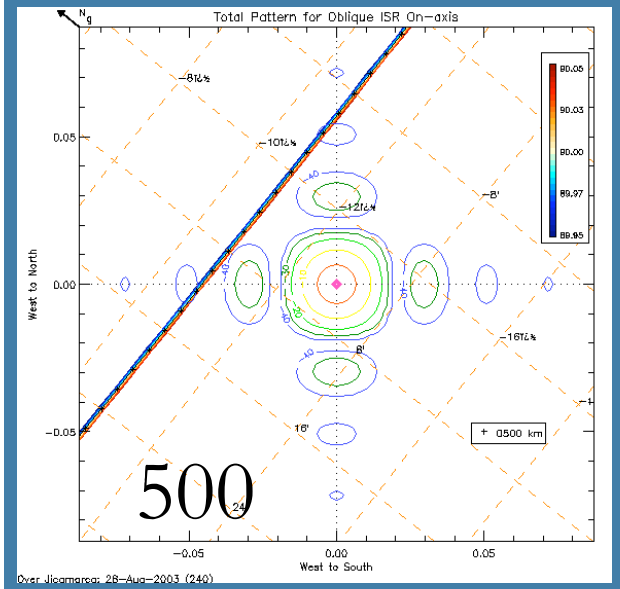
Jicamarca Activities: Jul 2007- Jun 2008

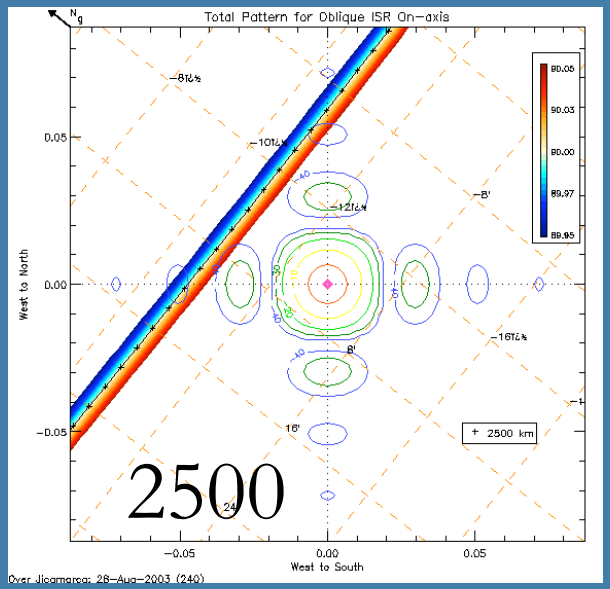
J. L. Chau and A. Calle

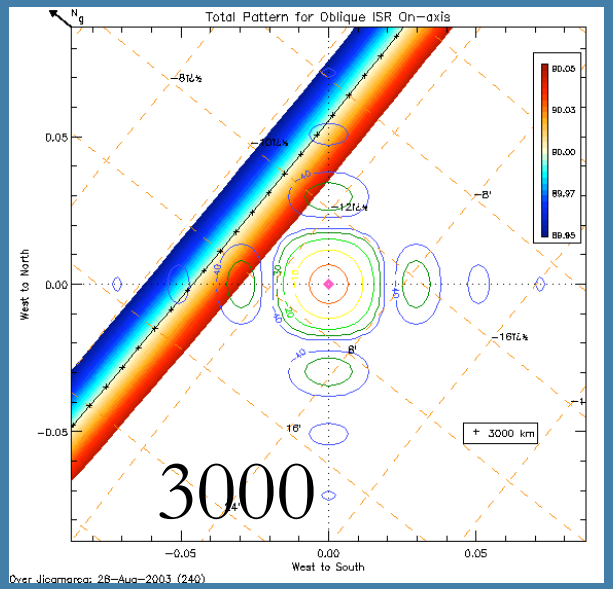
Radio Observatorio de Jicamarca, Instituto Geofísico del Perú, Lima

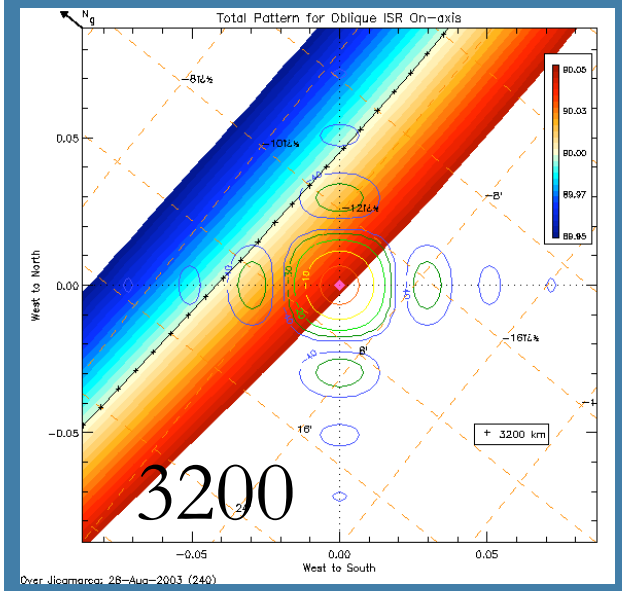
CEDAR 2008, Zermatt, Utah – June, 2008

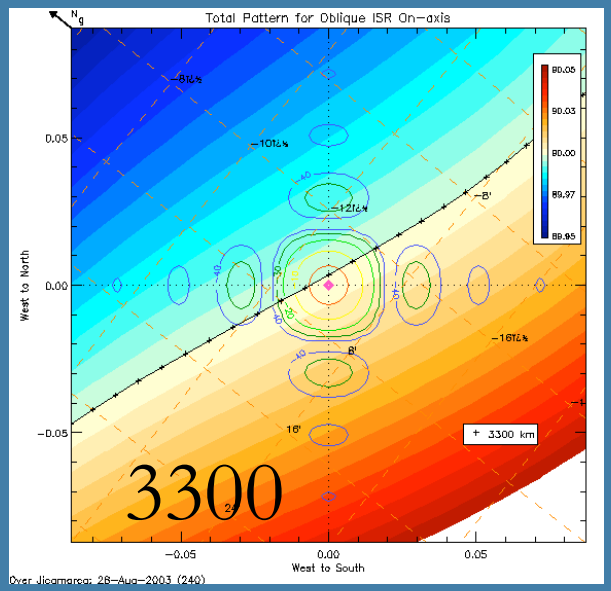
High altitude drifts (~3200 km): Did we miss the opportunity in 2003?

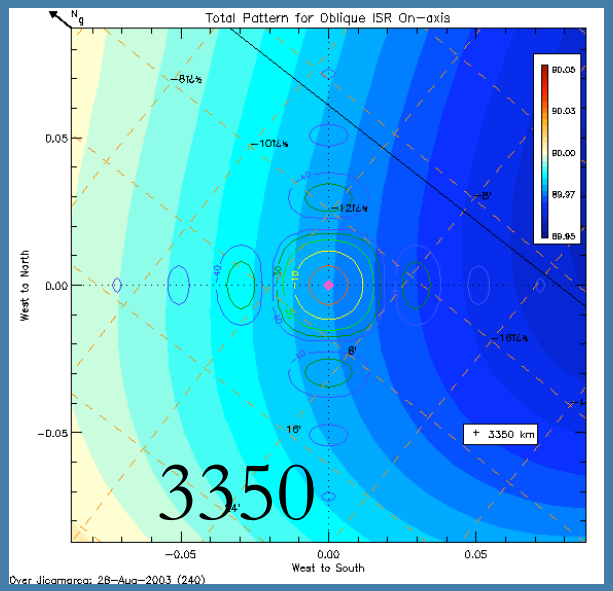




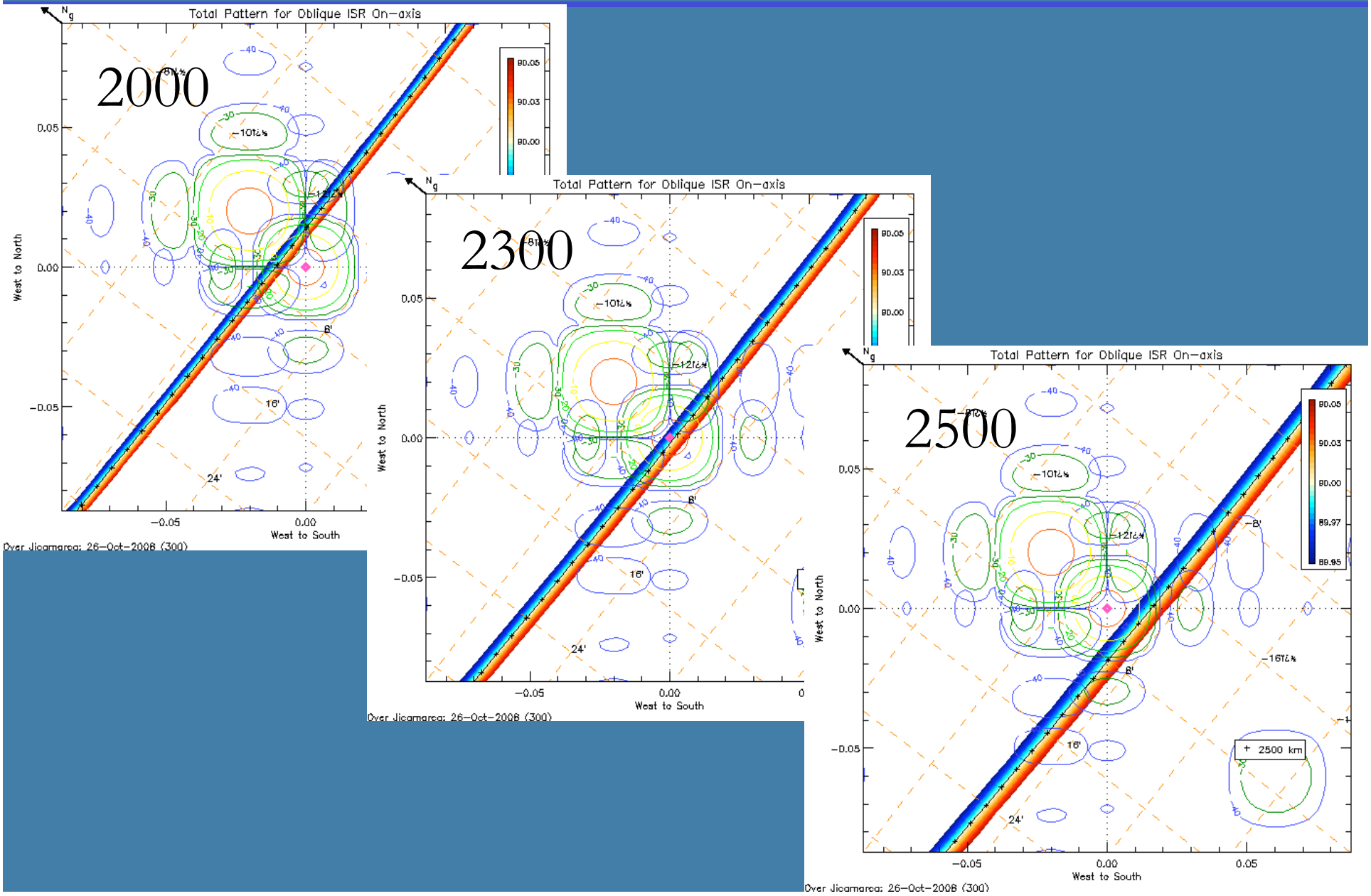








High altitude drifts (~2000 km): 2008-2010



JRO Improvements

- Averaged transmitter power for two transmitters improved from ~65 kW to ~100 kW (Improvement in Power supply from 17 kV to 20 kV) [O. Castillo et al.]
- Development and construction of magnetometers [O. Veliz et al.]
- Multi-static capabilities using Digital receivers [K. Kuyeng et al.]
- Development of 100 kW passive T/R switches [F. Villanueva et al.]
- Development of a 16-line radar controller [J. Muñoz]
- Development of Strategic plan for Management and Operations (help from Consultants)

2007-2008 Experiments

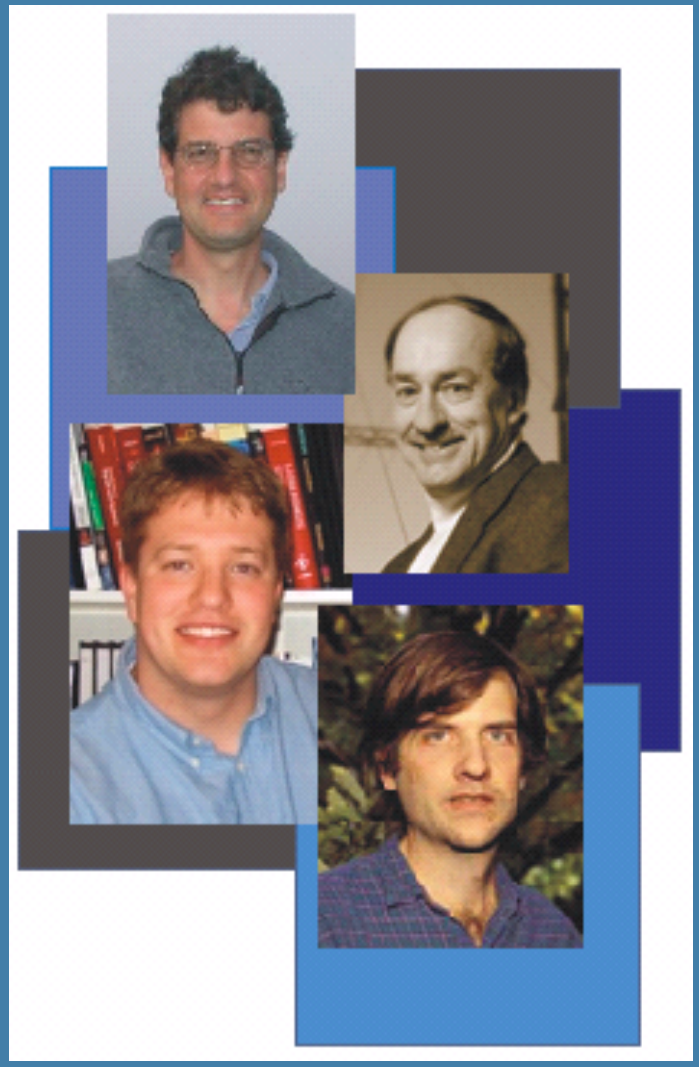
User	Institution	Time	Topic
C. Siefring	NRL	Jul 2007	CITRIS Calibration
M. Oppenheim/E. Bass	BU	Jul 2007	Meteor head experiments (6 rx, two polarization, …)
C. La Hoz	Tromso U.	Jul 2007	150-km 3D Imaging
J. Chau/M. Oppenheim	JRO/BU	Sep 2007	Aurigids meteor Shower
J. Chau/M. Oppenheim	JRO/BU	Jan 2008	Bitstatic meteor (head, trails)
M. Milla/E. Kudeki	UIUC	Mar 2008	Tristatic 150-km experiment (NS modulation)
J. Chau/M. Milla	UIUC	Apr 2008	Bistatic 150-km (Oblique vs. Perpendicular)
D. Hysell	Cornell	May 2008	Oblique ISR modes
C/NOFS	AFRL et al.	June 2008	Vertical and Zonal Drifts
E. Kudeki/P. Reyes	UIUC	June 2008	Three beam ISR experiments
L. Guo/G. Lehmacher	Clemson	Every month	JASMET (mesospheric winds)

Student Projects

Student	Advisor	Degree/Inst.	Topic
Marco Milla	E. Kudeki	Ph.D./UIUC	Perpendicular to B ISR Parameters
F. Rodrigues	D. Hysell	Ph.D./Cornell	Oblique ISR Parameters
P. Reyes	E. Kudeki	Ph.D./UIUC	Mesosphere/150-km/Perp. B
E. Bass	M. Oppenheim	Ph.D./BU	Meteoroid Mass from Meteor Heads
A. Malhorta (*)	J. Mathews	Ph.D./PSU	Meteor heads, trails and Sporadic E
L. Guo (*)	G. Lehmacher	Ph.D./Clemson	"Ignorosphere" parameters
R. Ilma	M. Kelley	Ph.D./Cornell	EEJ Anomalous resistivity
G. Sugar	M. Oppenheim	B.S./BU	Night/Day trail differences
S. Flores	J. Chau	M.S./PUCP	FPI 2D Analysis
N. Yoza	J. Chau	B.S./PUCP	EEJ Communications
H. Pinedo	J. Chau	M.S./PUCP	High resolution spectral techniques

Visitors

July 2007: Dr. Meers Oppenheim and students
Boston University
August 2007: Dr. Jean-Pierre St. Maurice
University of Saskatchewan, Saskatoon, Canada
January 2008: Dr. Andrew J. Gerrard
New Jersey Institute of Technology
February 2008: Dr. Jaime Estela
German Spacial Agency
March 2008: Dr. Vasyl Belyey
Tromsø University
March 2008: Marco Milla
University of Illinois
April 2008: Dr. David Hysell
Cornell University
June 2008: B. Livingston, T. Bullet, C. Valladares
LISN Ionosonde
June 2008: E. Kudeki, P. Reyes
UIUC



Newsletter

http://jro.igp.gob.pe/newsletter

Radio Observatorio de JICAMARCA Radio Observatory

JRO International Research Experience Program

Welcome to the International Research Experience Program at the Jicamarca Radio Observatory in Lima Peru. This program originally called "Summer Program for Students from Non peruvian Institutions" started two years ago and is financed by the National Science Fundation. After two successful years, and thanks to the positive feedback from previous students, we are offering an improved program this year.

The Jicamarca Radio Observatory exists today with the mission of deepening our understanding of the equatorial and low-latitude atmosphere and ionosphere and the systems to which they are coupled, fostering the creation of avant-garde radar and radio remote sensing techniques, training and educating new generations of space physicists and radio scientists and technicians, expanding its own capabilities through upgrade and invention, and increasing its influence internationally.

The students will work with staff engineers and scientists on projects related to ongoing research or instrumentation development programs. Research may be conducted in neutral atmospheric and ionospheric science as well as radar/radio instrumentation and software development. Given its location, frequency of operation, and array system, most JRO's research capabilities are unique. For example, this is the best place in the world where radar imaging of atmospheric and ionospheric phenomena can be learned and explored. Besides the unique research capabilities where students are welcomed to propose and run their own experiments, JRO offers a good opportunity to get hands-on-experience on different aspects of radar systems, from changing the antenna connections, improving RF components of the system, to develop sophisticated acquisition and processing programs. The students will be also exposed to frequent lectures and seminars given by the staff and by the visiting scientists. In addition, the students are also asked to give lectures at the beginning and at the end of their experience. A side benefit of the program is that students will get to know Peru, heir to ancient cultures and rich colonial tradition.

Who should apply?

Jicamarca International Research Experience Program

JICAMARCA INTERNATIONAL RESEARCH EXPERIENCE PROGRAM 2008

Roger Varney
Electrical and Computer Engineering
Cornell University, USA

Bernhard Etzlinger
Mechatronics
Johannes Kepler University
Linz, Austria