

The Agawa Jupiter Radio Observatory

Kochi, Japan



Kazumasa Imai (Kazu)
and
Toshimitsu Ohno (Toshi)

Jupiter Radio Map for iPhone

By Kazumasa Imai

Open iTunes to buy and download apps.



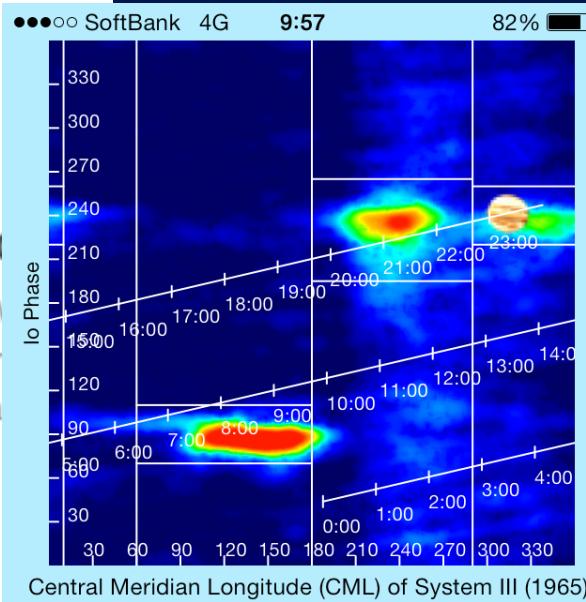
Description

Jupiter Radio Map displays the radio emission from Jupiter and the Io Phase.

Jupiter Radio

What's New

What's New in Version 1.1



Central Meridian Longitude (CML) of System III (1965)

2012/ 3/10 23:22 [UT]

CML: 315° Io-C

Io Phase: 242° Current Time Info

Year Month Day Hour Minute

2012 3 10 23 22

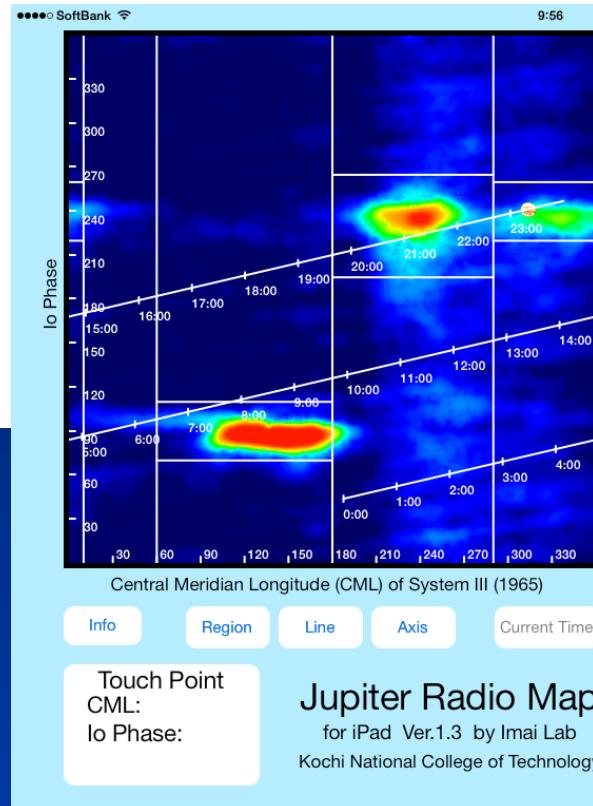
Jupiter Radio Map

for iPhone Ver.1.1 by Imai Lab
Kochi National College of Technology

Jupiter Radio Map

By Kazumasa Imai

Open iTunes to buy and download apps.



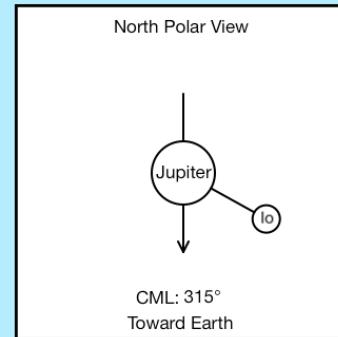
for iPad

2012/ 3/10 23:22:00 [UT]

CML: 315°

Sleep On

Io Phase: 242° Io-C

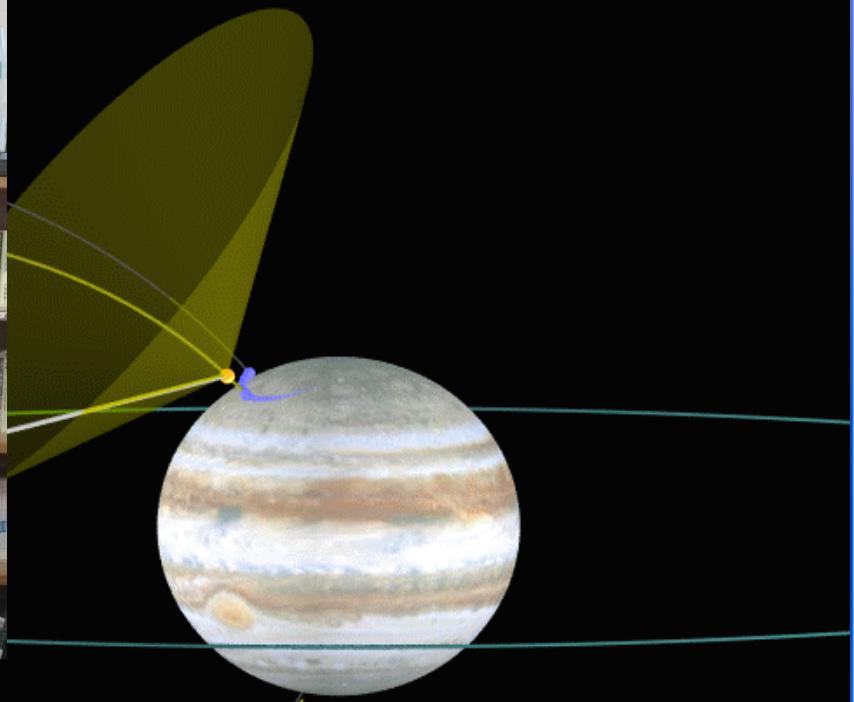


Year Month Day Hour Minute

2009	12	27	20	15
2010	1	8	21	20
2011	2	9	22	21
2012	3	10	23	22
2013	4	11	0	23
2014	5	12	1	24
2015	6	13	22	25



Professor and Dr. Kazumasa Imai
Department of Electrical Engineering and
Information Science
Kochi National College of Technology
Kochi, Japan



Mr. Toshimitsu Ohno
Niyodogawa School Superintendent
Kochi, JAPAN



NASA RadioJOVE

Agawa Observatory

Niyodogawa-cho Japan





Winter season





Colored leaves in autumn





Akiba Maturi

(Famous festival in Japan)

This festival is held
on 11th February every year.



Niyodogawa-cho



① Yasui Valley



② Nakatsu Valley



③ Hyotan Cherry Tree



⑥ Aso Chinkabashi

B



Agawa Observatory



Agawa Observatory



The inside





Dagik Earth

Under development at
Kyoto University





2006

Dr. James Thieman



2013

Dr. Charles Higgins



Please visit our observatory and our town!



Agawa Observatory, Niyodogawa-cho Japan

Agawa Jupiter Radio Observatory



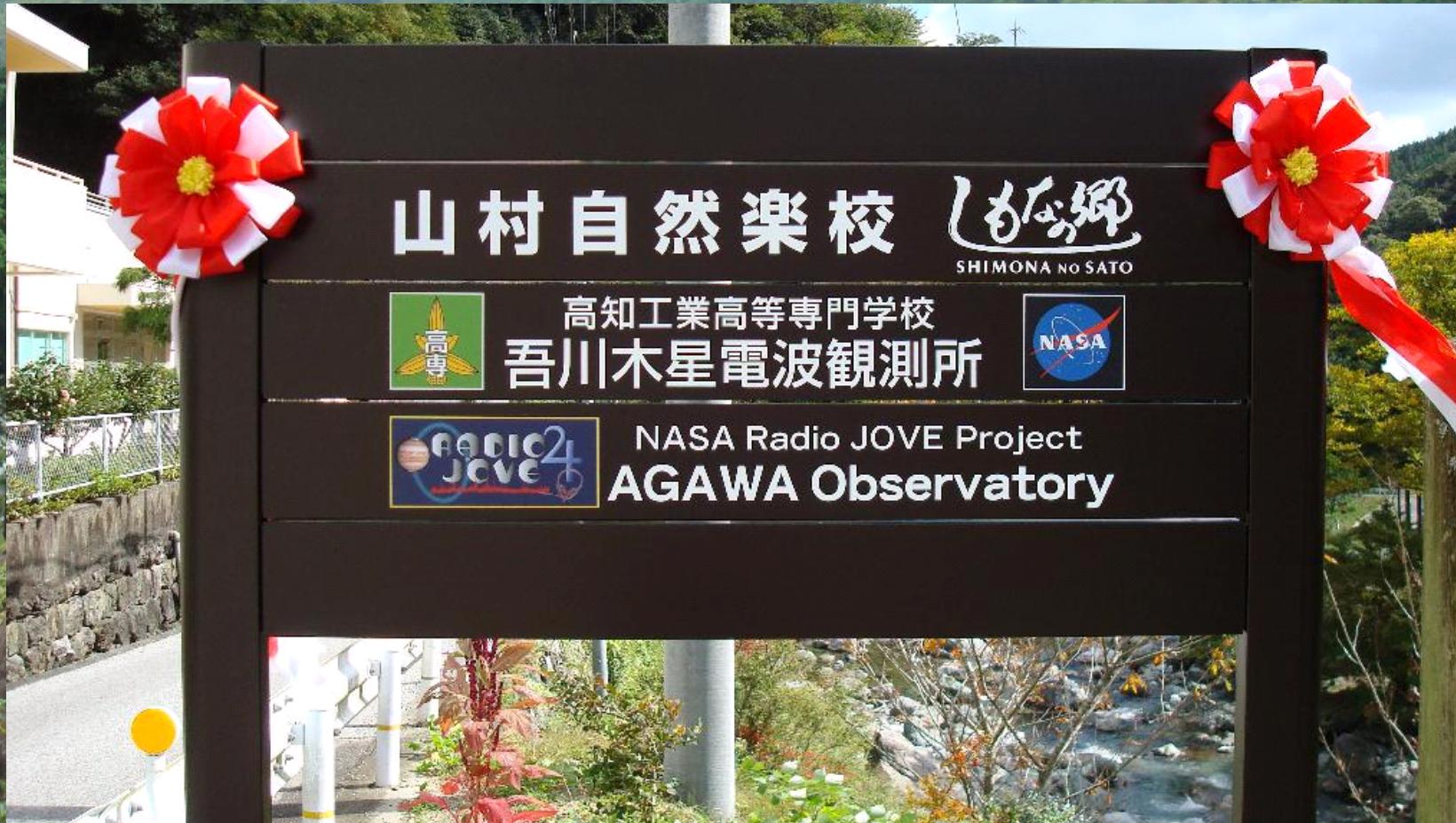
Agawa Jupiter Radio Observatory



Opening Ceremony



Agawa Jupiter Radio Observatory



Agawa Jupiter Radio Observatory

Cross Logperiodic Antenna

Frequency Range: 18~36MHz

Gain: 7dBi

Maximum Length: 8.6m

Height: 17m





Agawa Jupiter Radio Observatory



Event Counter for Main Window Chart

Find Data in Radio Jove Archive

Spectrum

Observer Log

Radio-SkyPipe 2.0.0 Client Mode Main Window Agawa Observatory http://jupiter.kochi-ct.jp/agawa/

Client Connection to: Agawa Observatory in JAPAN

Radio-Sky SNTP Clock Client 1.0.2

SkyPipe Wav Recorder

File Edit Options Log

Get Time

Adjust Clock

Auto Adjust

1 hr

NTP Version = 4
Stratum = 2
Precision = 2^-20 sec.
Ref ID = 64.20.112.75
Last Server Sync = 10/28/2008 23:31:27.111
Digi TimeStamp = 10/28/2008 23:46:05.529
Receive TimeStamp = 10/28/2008 23:46:05.585
Transmit TimeStamp = 10/28/2008 23:46:05.585
Trip Time = 0.125 secs.
Difference: 0.007 secs.
Suggested Correction: 0.003sec.

Time retrieval succeeded. 10/28/2008 1:46:14 PM

NTP Pool

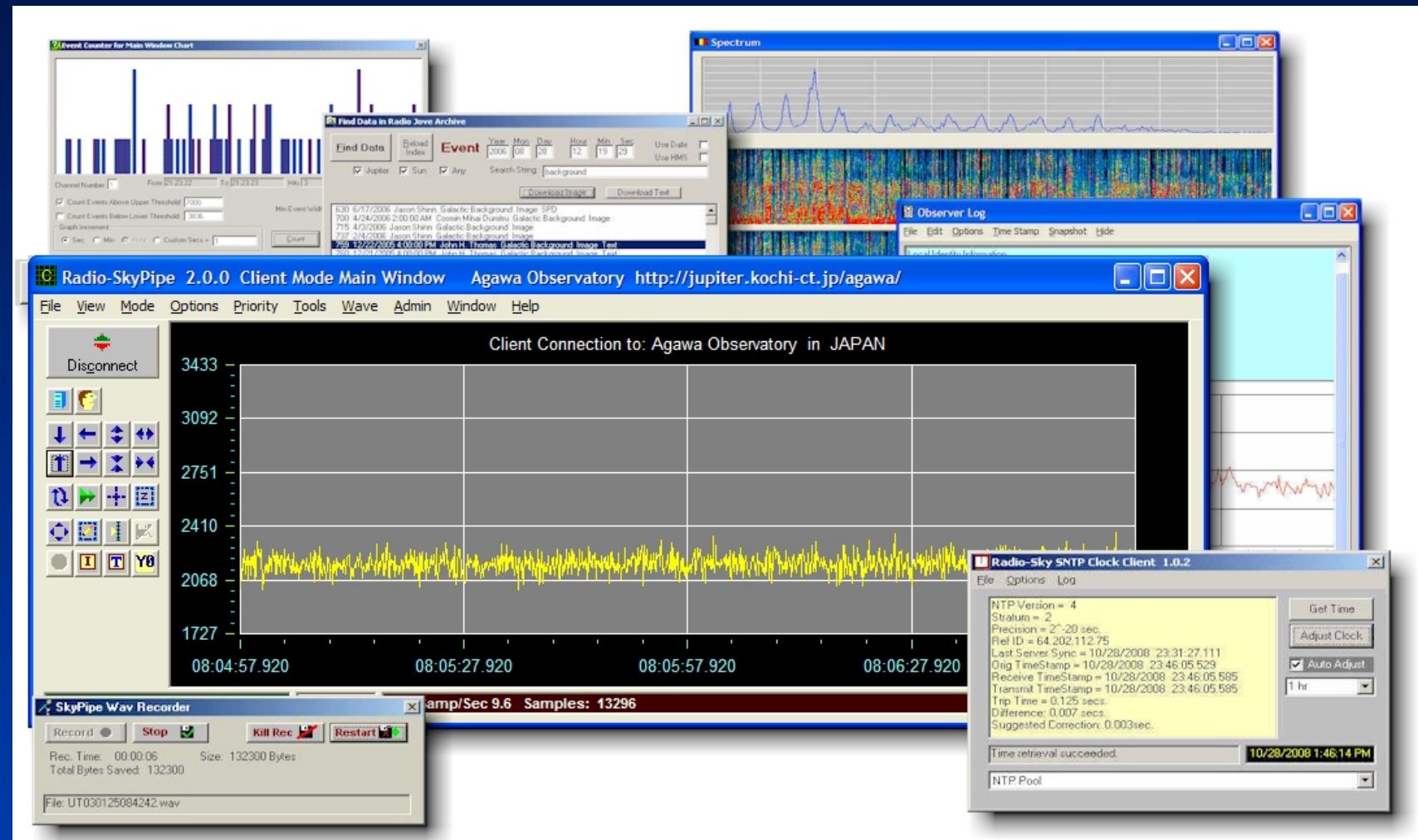
Record Stop Kill Rec Restart

Rec. Time: 00.00.06 Size: 132300 Bytes
Total Bytes Saved: 132300

File: UT030125084242.wav

amp/Sec 9.6 Samples: 13296

Radio-SkyPipe II - An Internet Enabled Strip Chart Recorder



A view along one arm of the Mills Cross Array (22MHz)

Photo courtesy of

the Archives of the Carnegie Institution of Washington.



[1955]

Seneca, Maryland, USA

Journal of Geophysical Research, 1955

OBSERVATIONS OF
A VARIABLE RADIO SOURCE ASSOCIATED
WITH THE PLANET JUPITER

B. F. Burke and K. L. Franklin

Department of Terrestrial Magnetism,
Carnegie Institution of Washington,
Washington 15, D. C.

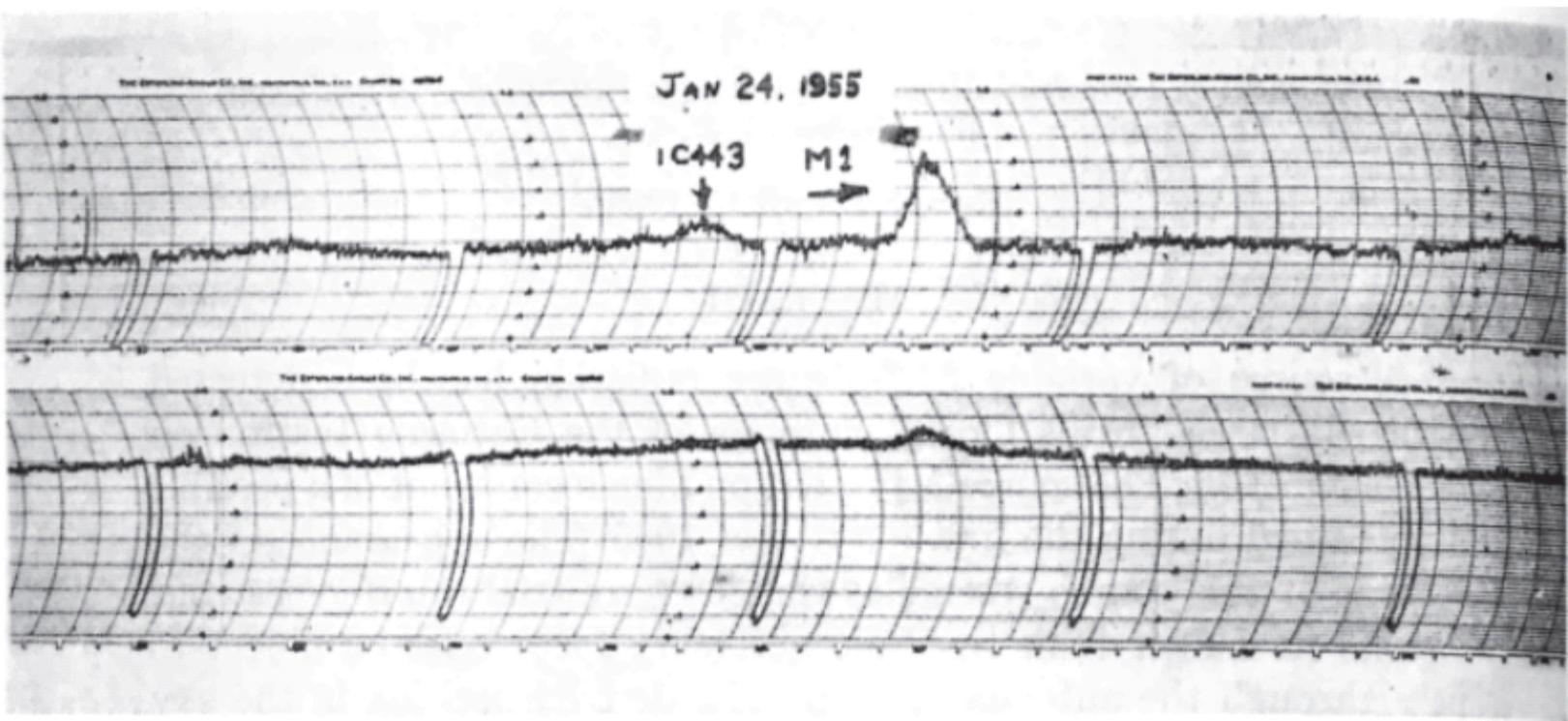


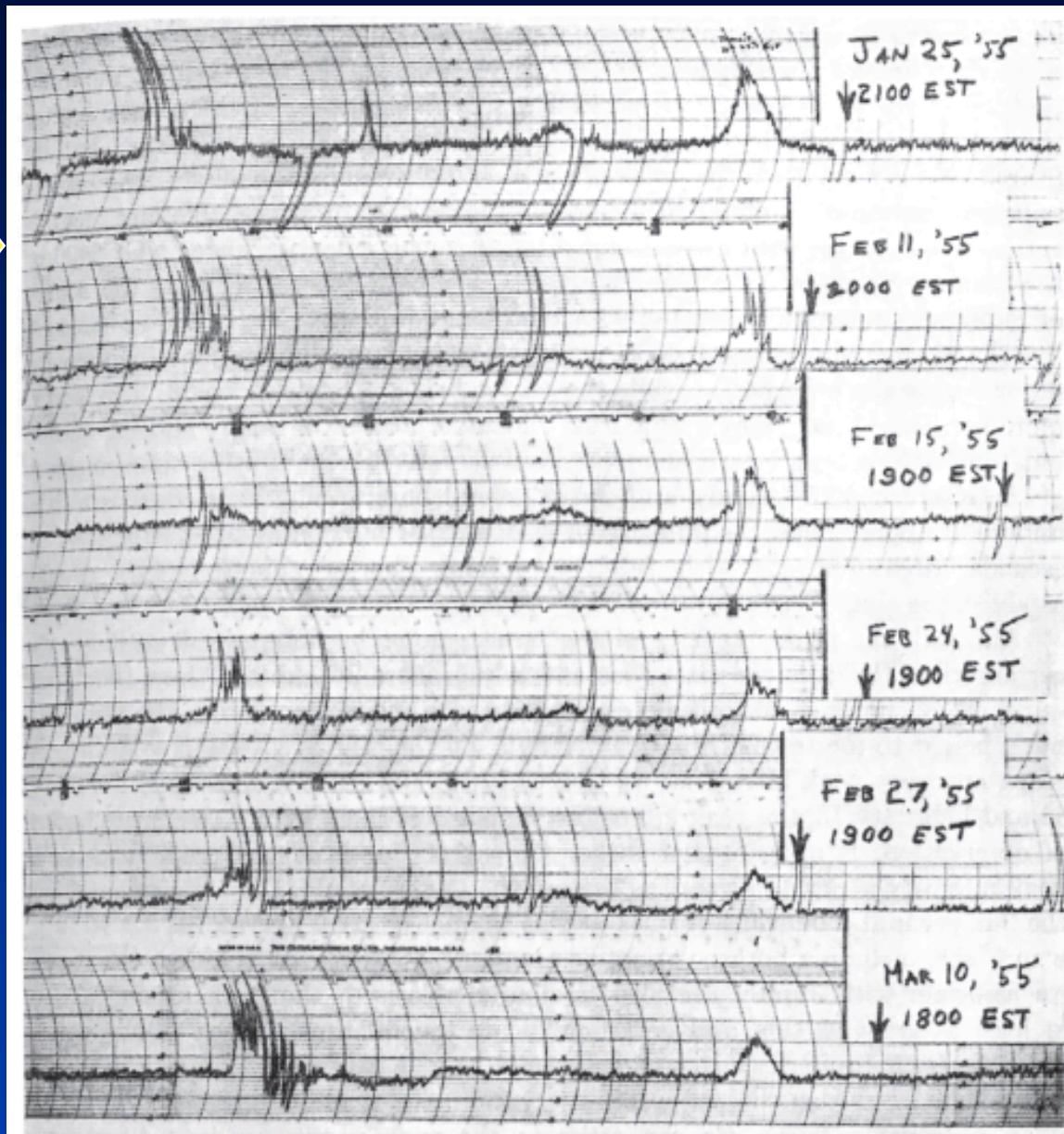
FIG. 1—Phase-switching (upper) and total power records showing Crab Nebula (M1) and IC443 passing through the antenna pattern

Burke and Franklin, JGR, 1955

My Birth Day!!
1955
Feb.4



Burke
and
Franklin
JGR
1955





Dr. Bernard Burke

Professor of
Massachusetts Institute of Technology (MIT)

Drs Burke and Franklin discovered Jupiter's radio emissions from observations made in January, **February**, and March **1955**.

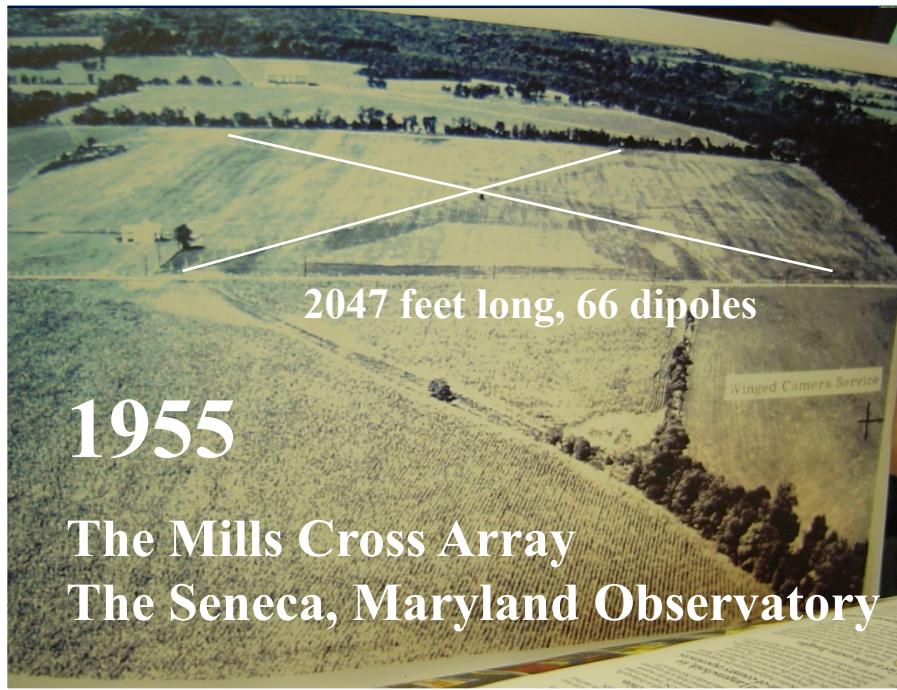
This picture was taken at the meeting of the Planetary Radio Emissions VI, April 20-22, 2005, Graz, Austria

Dr. Kazumasa Imai

Professor of
Kochi National College of
Technology, Japan

1955 marks the birth of
Dr. Imai (**February** 4) and
Jupiter radio Astronomy
(April 6).

To Imai-san,
whose life started
when my astronomical
career began!
Bernie Burke



1955

The Mills Cross Array
The Seneca, Maryland Observatory



2004



2004



2004

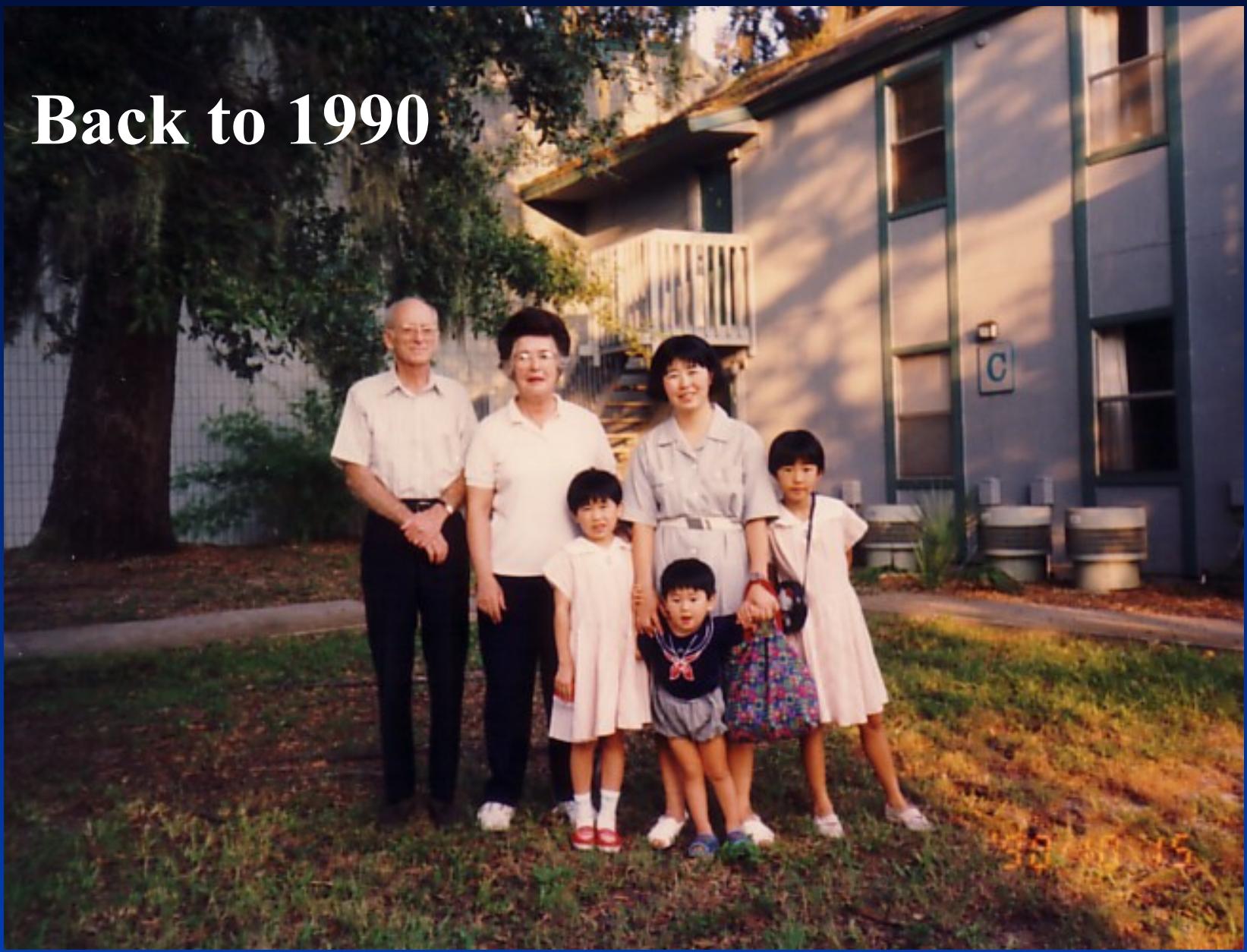


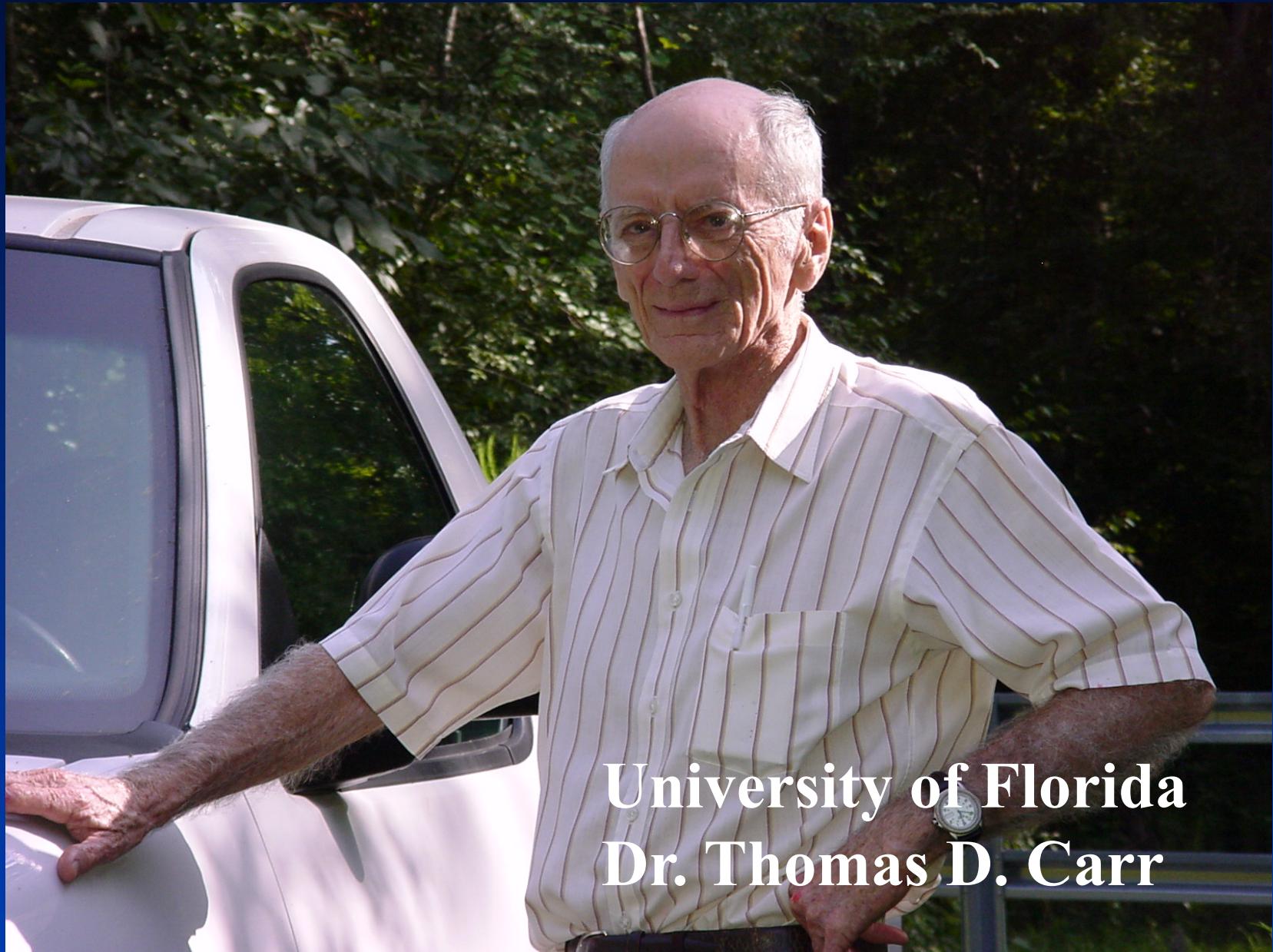
PLANETARY RADIO EMISSIONS DISCOVERY SITE

IN 1955 SCIENTISTS BERNARD BURKE AND KENNETH FRANKLIN FROM THE CARNEGIE INSTITUTION OF WASHINGTON ACCIDENTALLY DISCOVERED NATURALLY-GENERATED RADIO WAVES FROM JUPITER USING A 96-ACRE ANTENNA ARRAY. THIS DISCOVERY LED TO GREATER UNDERSTANDING OF PLANETARY MAGNETIC FIELDS AND PLASMAS AND OPENED A NEW WINDOW IN OUR EXPLORATION OF THE SOLAR SYSTEM.

MARYLAND HISTORICAL TRUST
MARYLAND STATE HIGHWAY ADMINISTRATION

Back to 1990

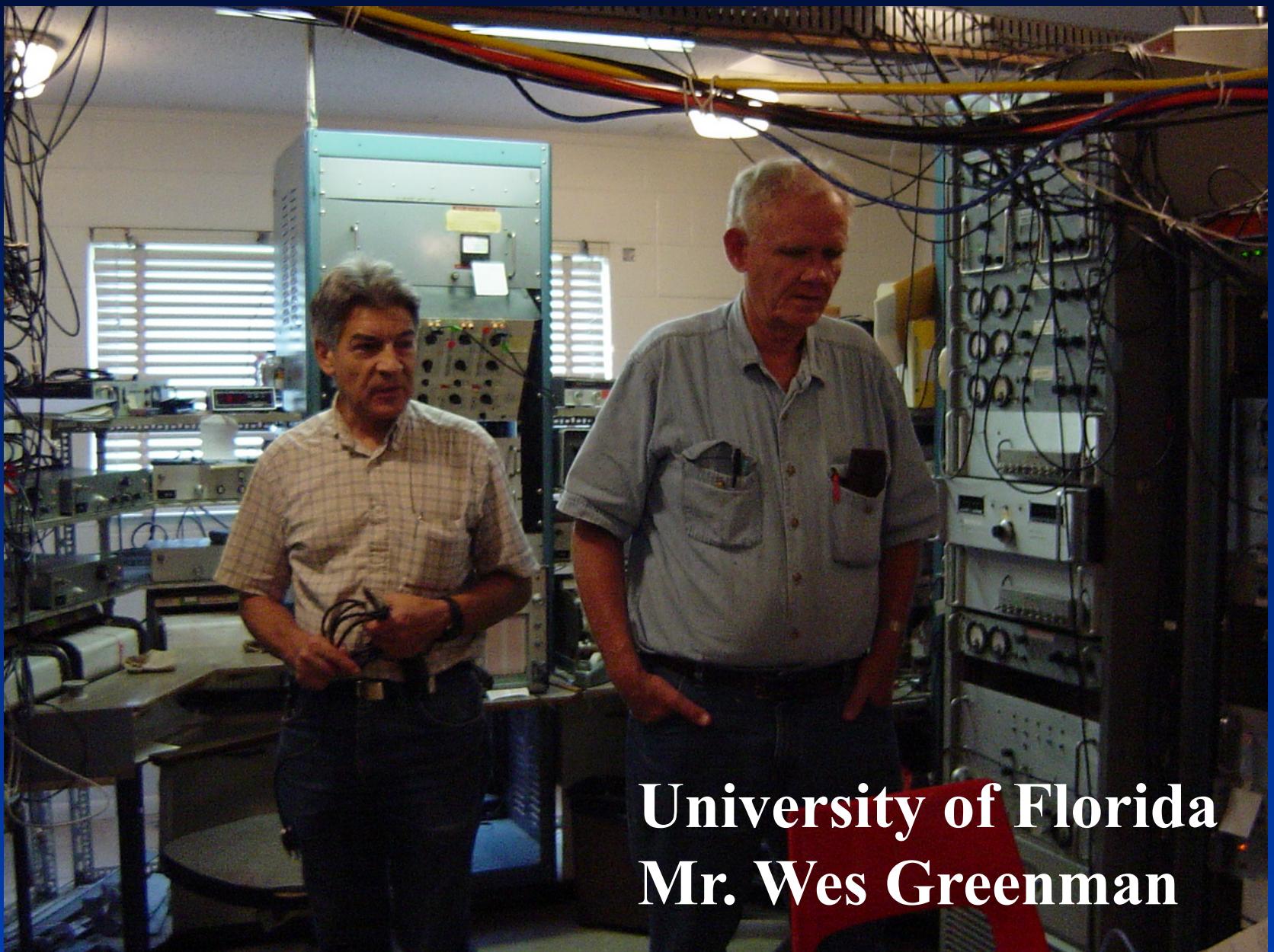




**University of Florida
Dr. Thomas D. Carr**



University of Florida
Dr. Francisco Reyes



University of Florida
Mr. Wes Greenman



History of Modulation Lanes (ML)

- 1955 JDR Discovery by Burke & Franklin
- 1968 ML Discovery by Riihimaa
(Narrowband Observation)
- 1980 Genova et al. group Observations
(Wideband and Theory)
- 1987 Wideband ML
observed by Riihimaa
- 1992 New model by Imai et al.
(PRE3,GRL,JGR)



Dr.Riihimaa

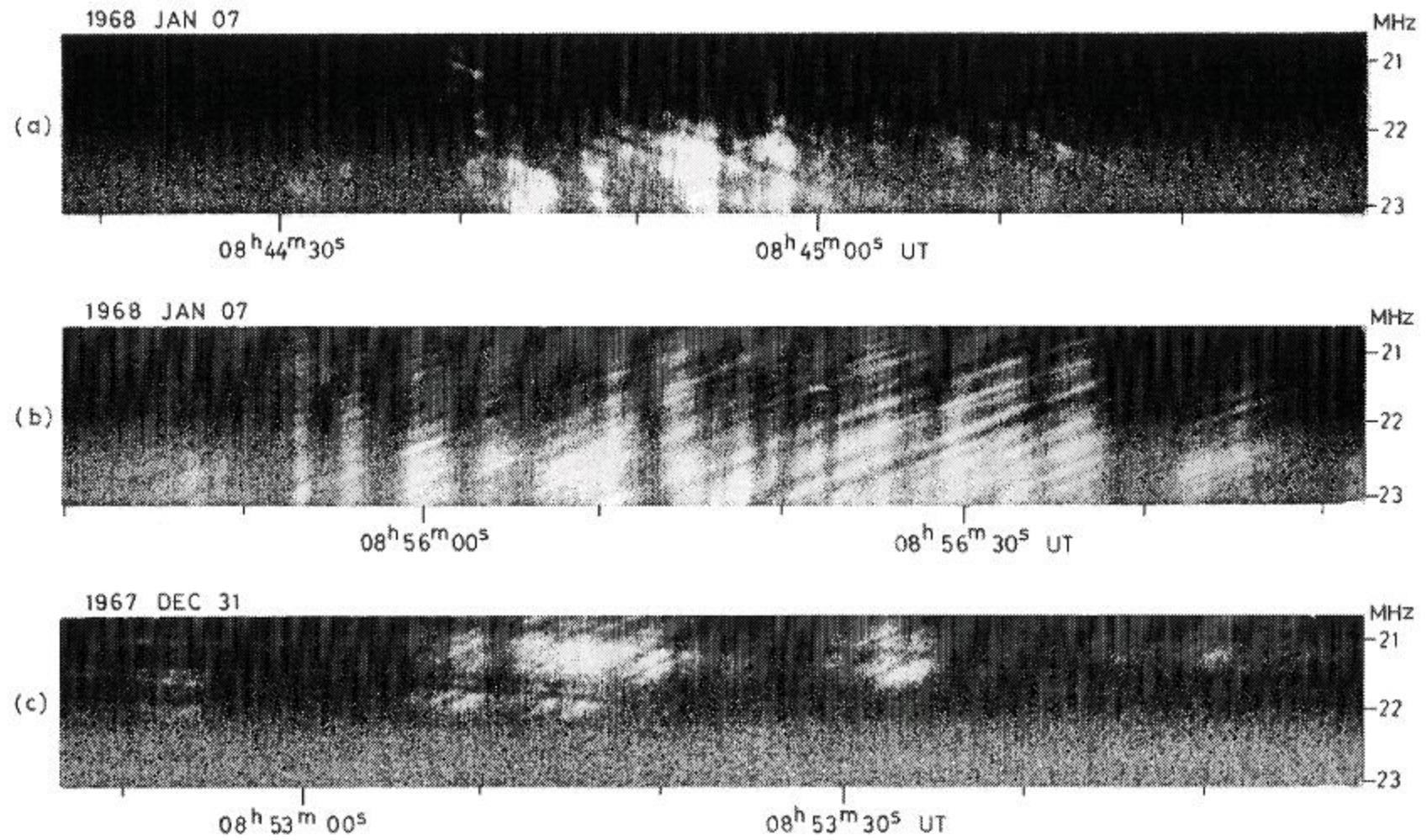
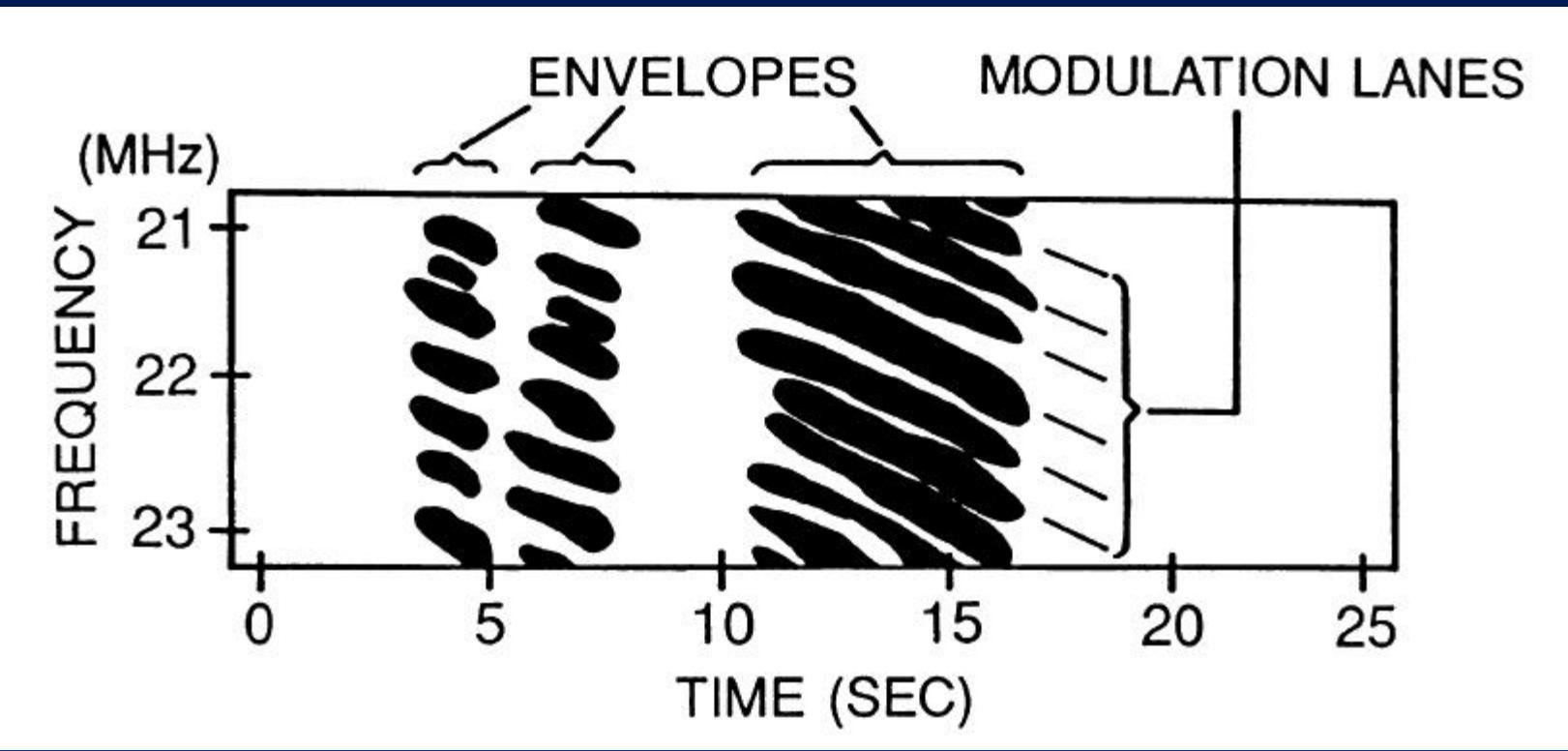
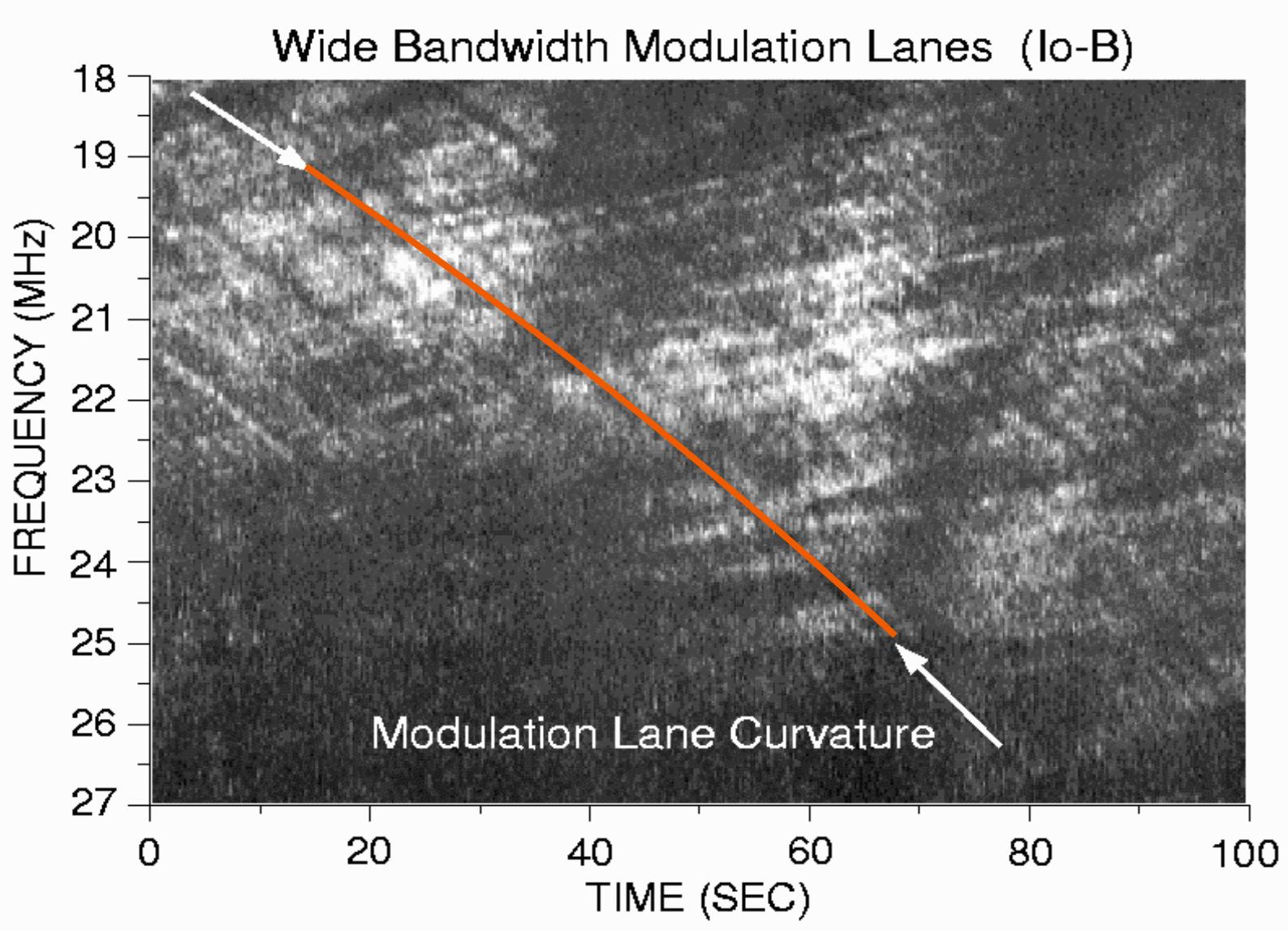
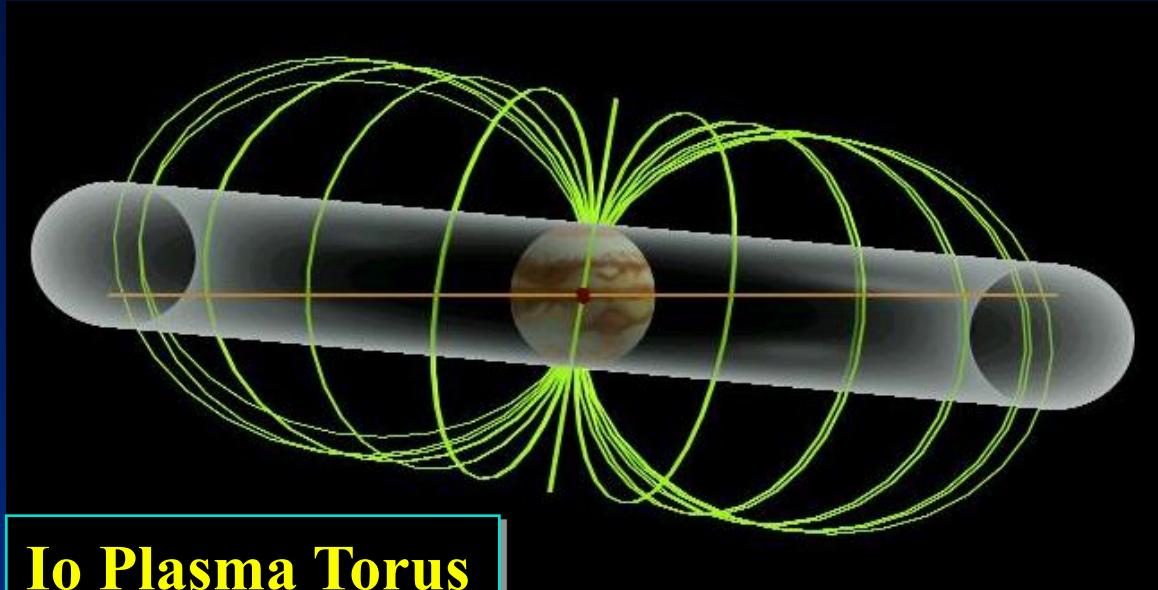


FIGURE 1.11. Samples of modulation lanes obtained at the Department of Astronomy, University of Florida. Positive lanes appear in (a), negative lanes in (b) and crossed lane patterns in (c). (after Riihimaa [1993])

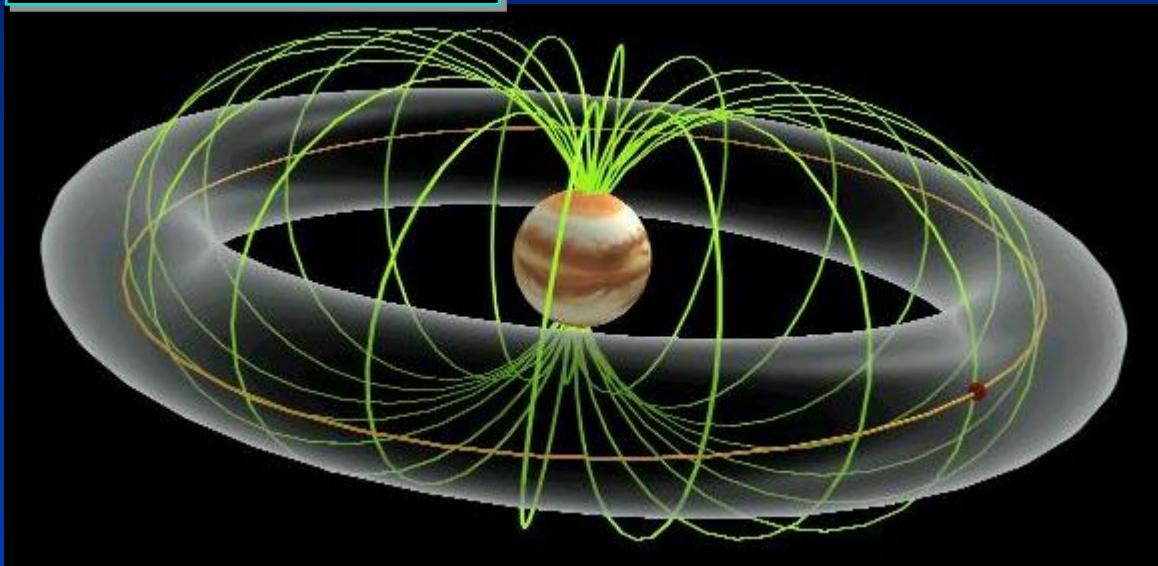




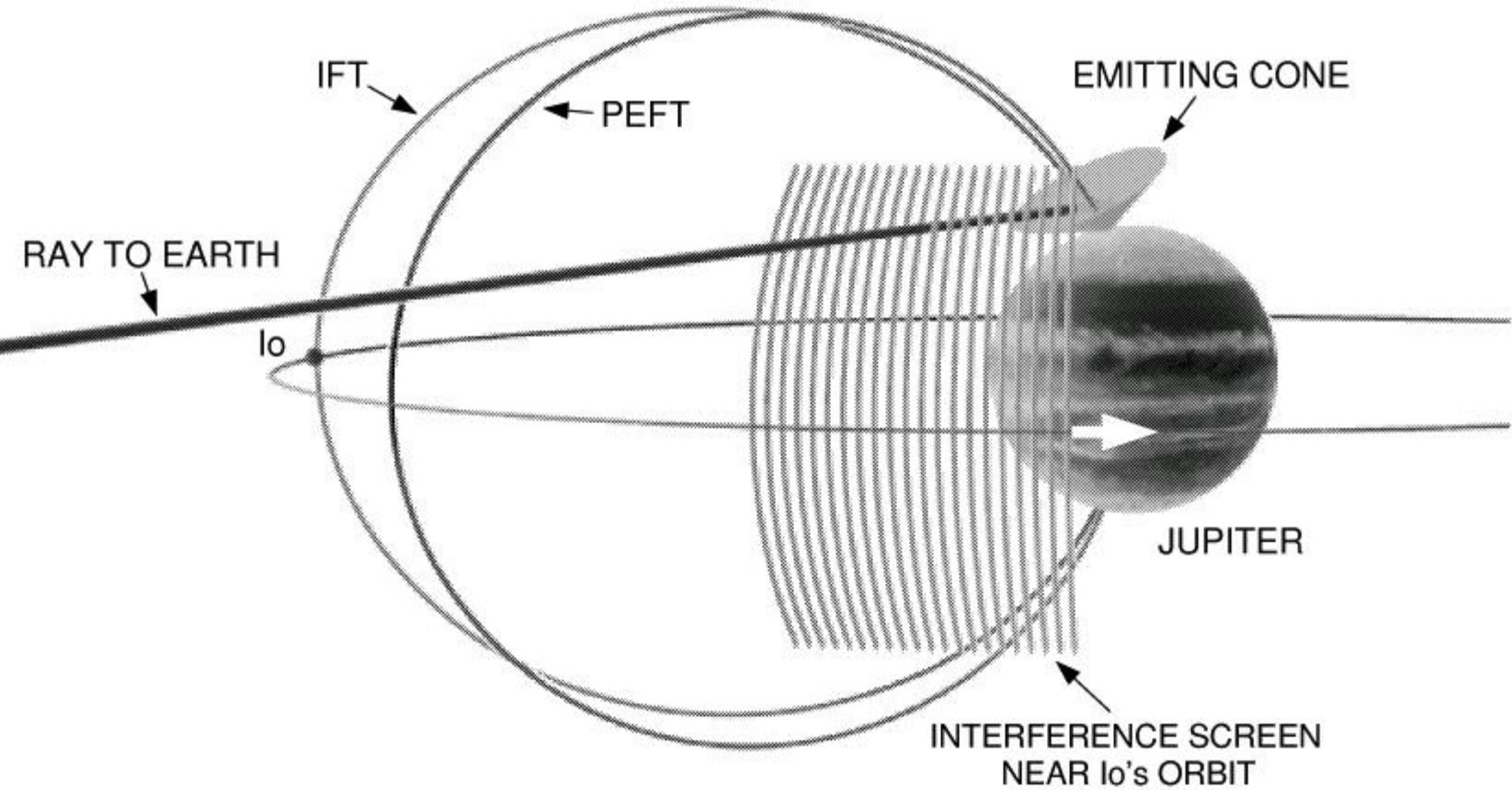
University of Florida Wideband Spectrograph

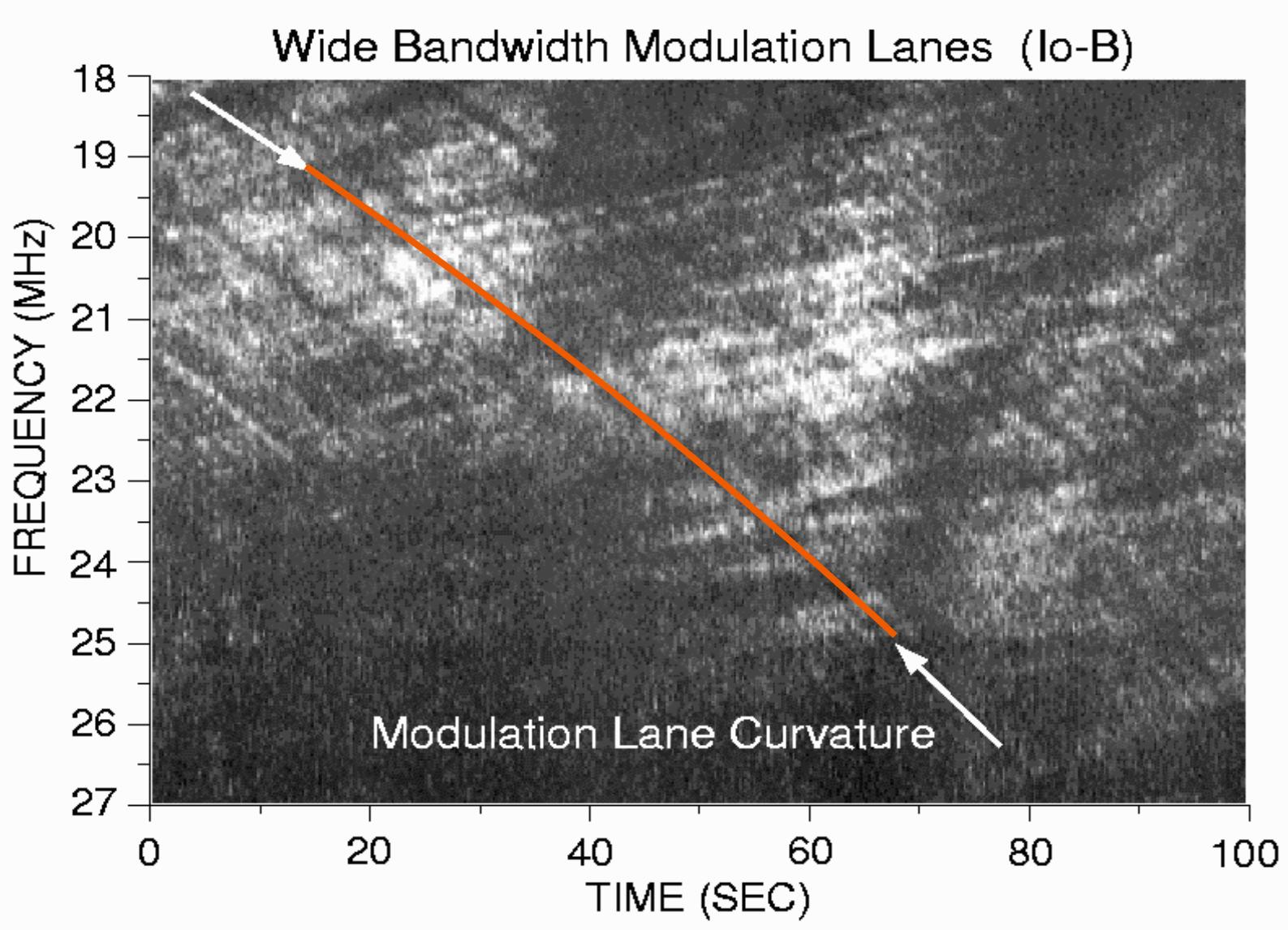


Io Plasma Torus



Diffracting Screen Model

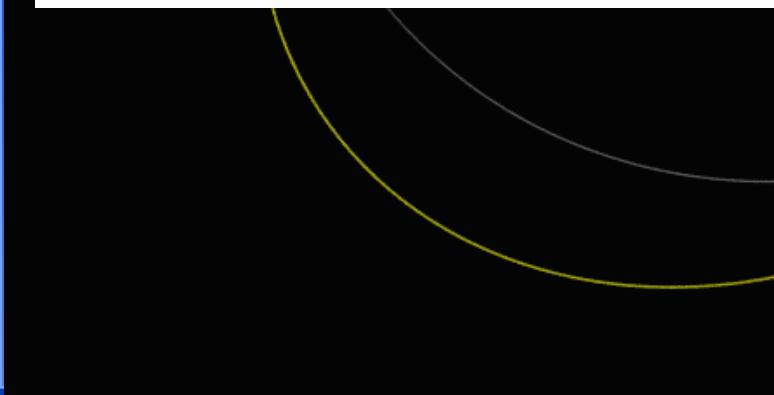
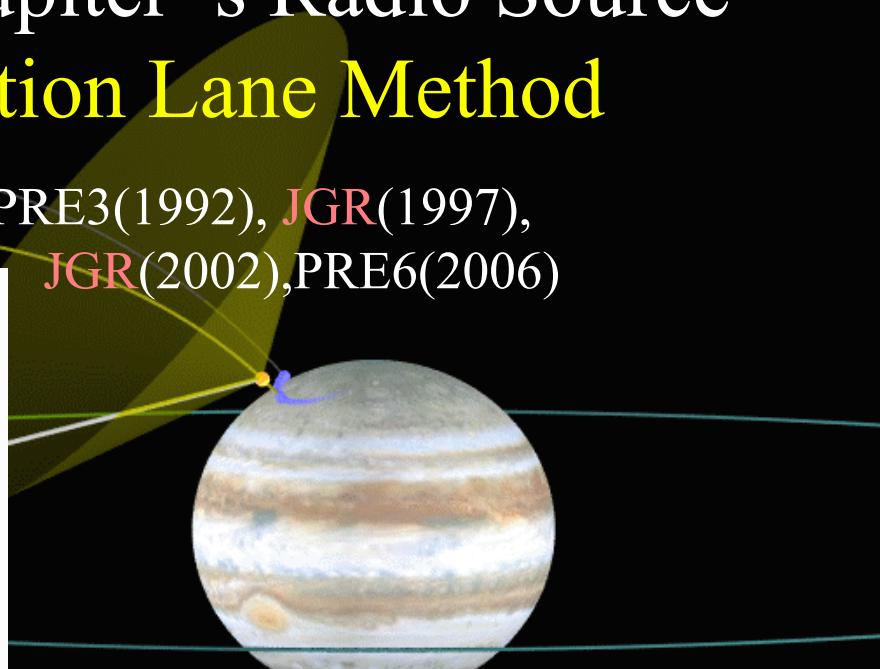
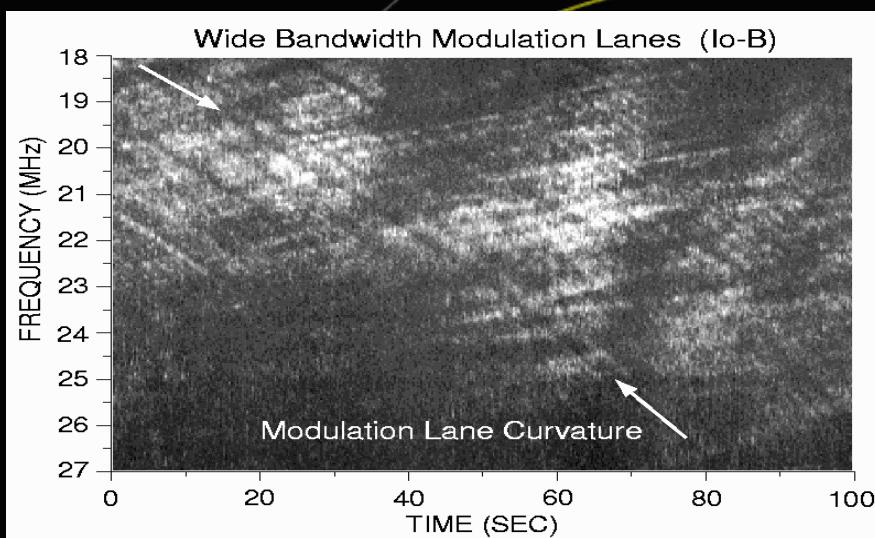




University of Florida Wideband Spectrograph

Remote Sensing of Jupiter's Radio Source by using Modulation Lane Method

Imai et al.: GRL(1992), PRE3(1992), JGR(1997),
JGR(2002), PRE6(2006)



Doctoral Dissertation - Kyoto University

**Modeling of Modulation Lanes in
Jupiter's Decametric Radio Spectra**

by
Kazumasa Imai

The Internet Jupiter Radio Observatory (IJRO) from 2004



IJRO - Netscape
ファイル(E) 編集(E) 表示(U) ジャンプ(Q) ブックマーク(B) ツール(T) ウィンドウ(W) ヘルプ(H)

http://jupiter.kochi-ct.jp/

The Internet Jupiter Radio Observatory

Welcome to "The Internet Jupiter/Solar Radio Observatory"!!
University of Florida Radio Observatory ([UFRO](#)) is located at [Longitude: 83deg,2min Latitude: 29deg,32min].

To see the online chart recorder of UFRO, please click .
On the next web page, we suggest selecting "Refresh Rate (10sec)" and then "Run". Enjoy!

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<http://jupiter.kochi-ct.jp/>

N IJRO - Netscape

ファイル(F) 編集(E) 表示(V) ジャンプ(G) ブックマーク(B) ツール(T) ウィンドウ(W) ヘルプ(H)

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<http://jupiter.kochi-ct.jp/>



University of Florida Radio Observatory (UFRO)

16 conical log periodic array antenna receiving system

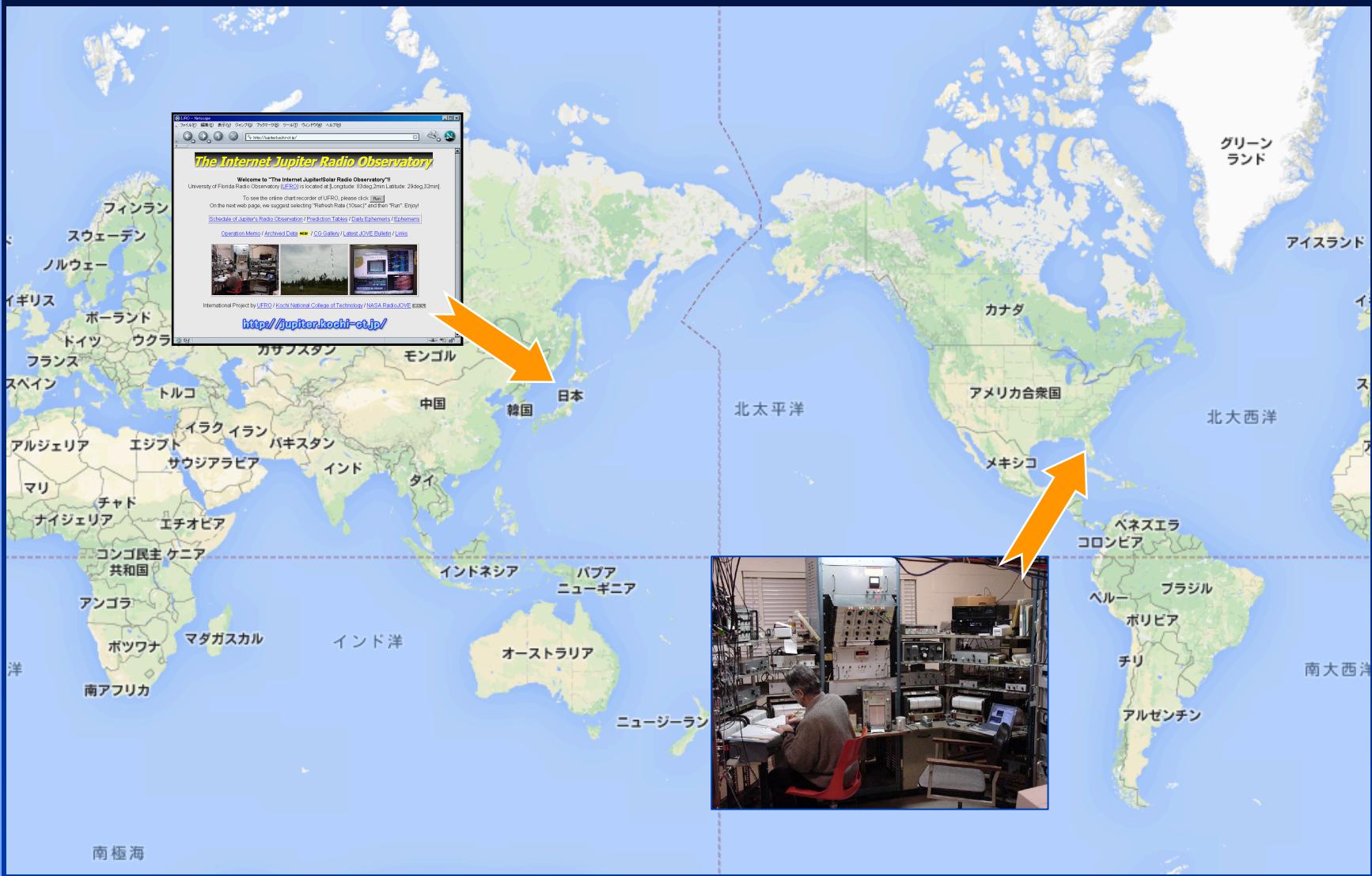
Connected by the Internet



Karacrix

8 Channel A/D Converter Connected to the Internet!!





N IJRO - Netscape

ファイル(F) 編集(E) 表示(V) ジャンプ(G) ブックマーク(B) ツール(T) ウィンドウ(W) ヘルプ(H)

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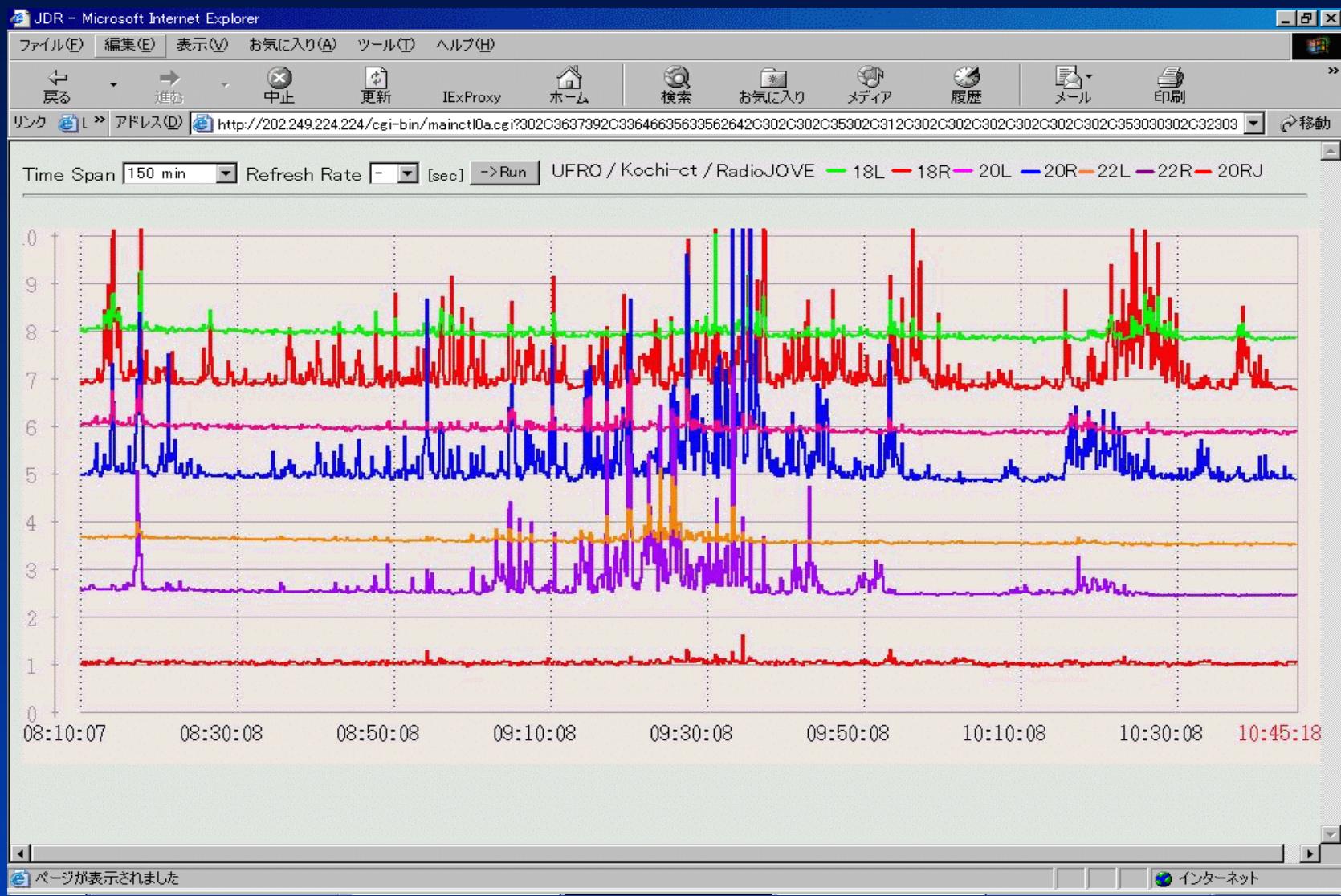
[Operation Memo](#) / [Archived Data](#) NEW / [CG Gallery](#) / [Latest JOVE Bulletin](#) / [Links](#)



International Project by [UFRO](#) / Kochi National College of Technology / [NASA RadioJOVE](#) 010504

<http://jupiter.kochi-ct.jp/>

Real Time Pen Recorder on the Web!!





戻る 進む 中止 更新 IExProxy ホーム 検索 お気に入り メディア 履歴 メール 印刷

リンク [E](#) >> アドレス(D) <http://202.249.224.224/records.html>

[移動]

Archived Data

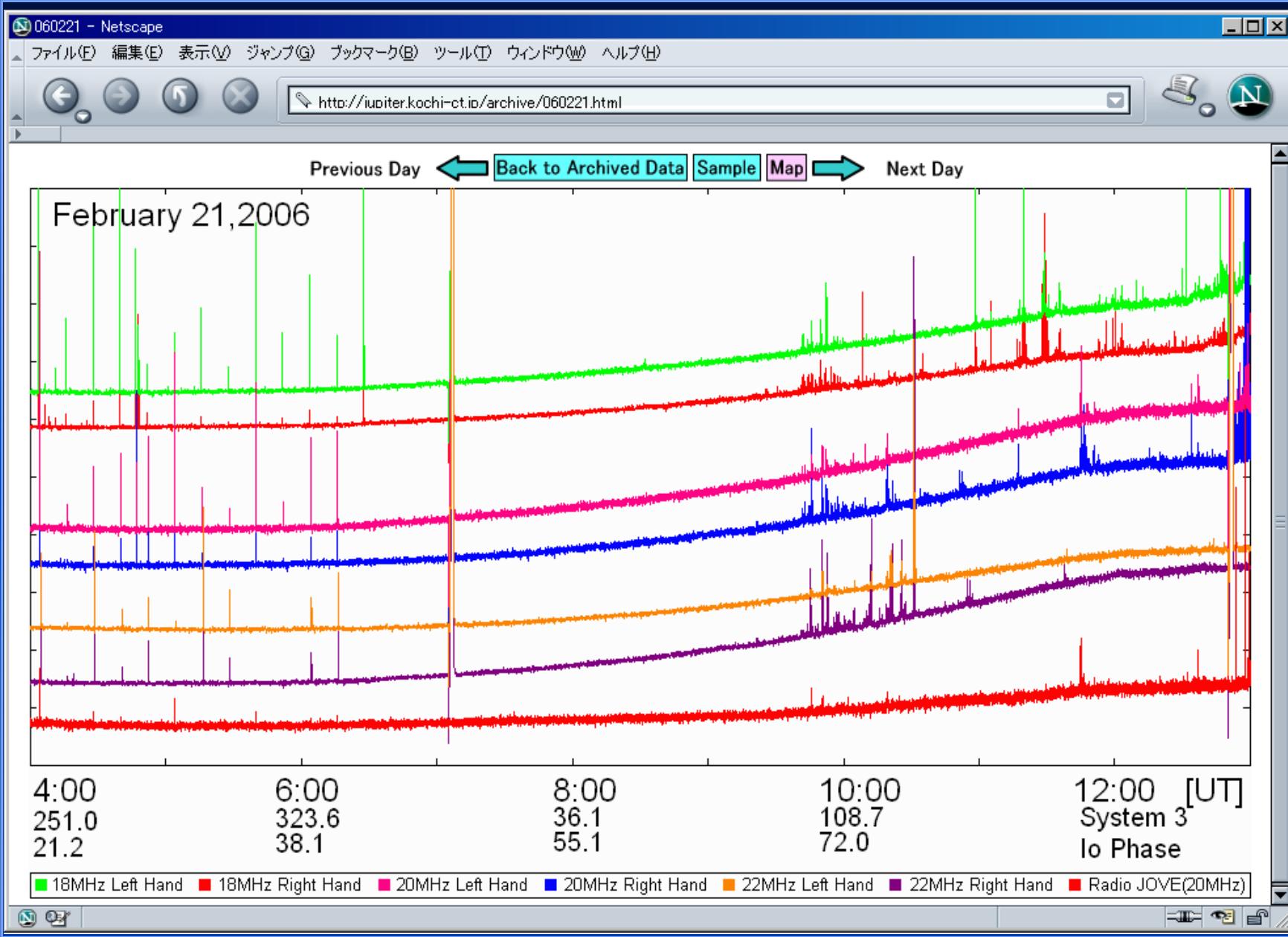
[back](#)

Data detected by
Radio JOVE Receiver!
[Example](#)

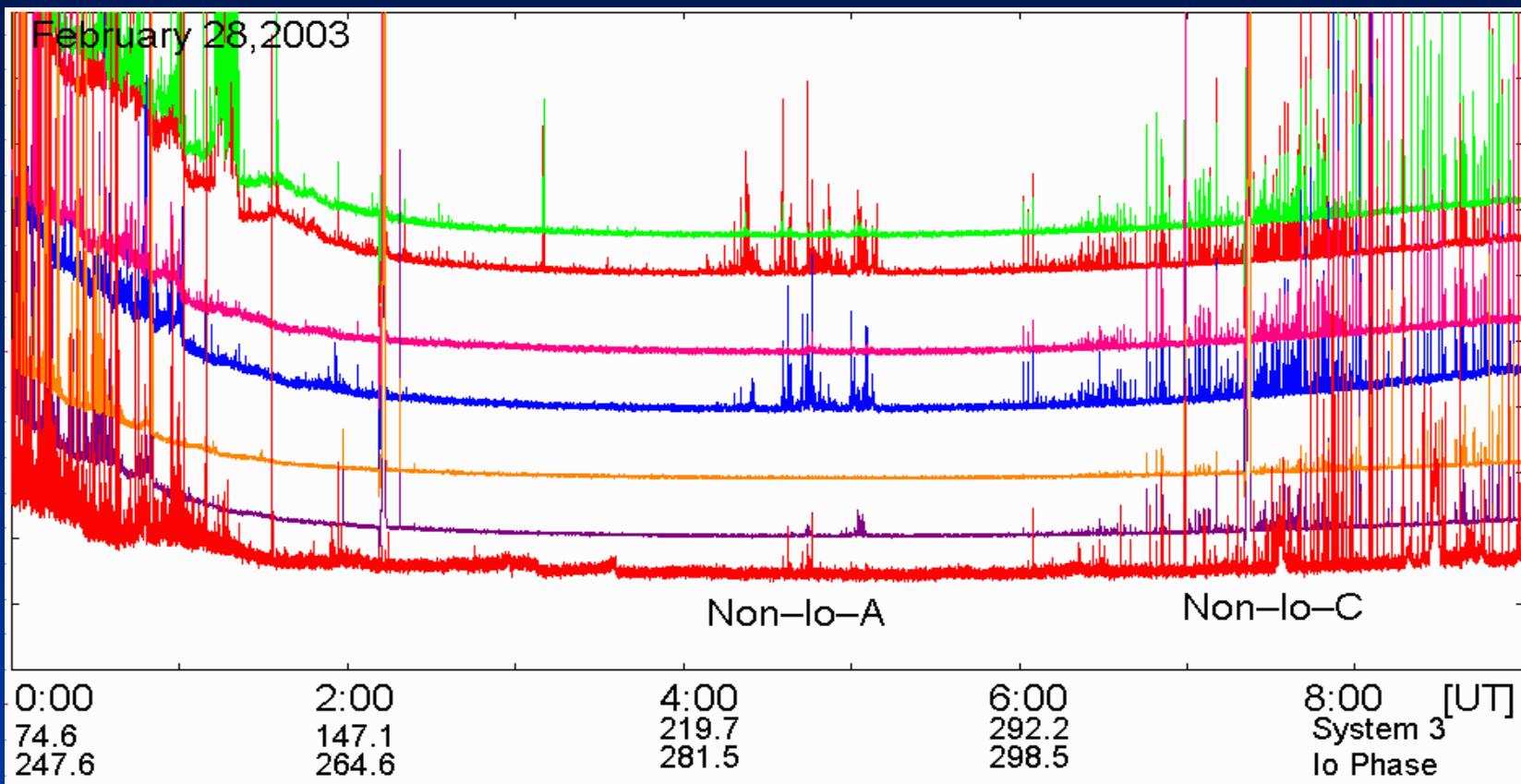
2003/02/27 00:00-09:00	2003/02/26 00:00-09:00
2003/01/19 07:00-10:00	2003/01/10 07:00-10:00
2003/01/01 07:00-10:00	2002/12/29 07:00-10:00
2002/12/24 07:00-10:00	2002/12/22 07:00-10:00
2002/12/17 07:00-10:00	2002/12/15 07:00-10:00
	2002/12/10 07:00-10:00

March,2003	February,2003
	2003/02/28 00:00-09:00 A
	2003/02/27 00:00-09:00 B
	2003/02/26 00:00-09:00 C
	2003/02/25 00:00-09:00 A
	2003/02/24 00:00-09:00 C
	2003/02/23 00:00-09:00 A
	[Off Line]
2003/03/15 00:00-09:00 A	From:2003/02/21 0:00
2003/03/14 00:00-09:00 A	To: 2003/02/22 5:00
[Off Line]	2003/02/20 00:00-09:00 B
From:2003/03/12 2:00	2003/02/19 02:00-11:00 A
To: 2003/03/13 4:00	2003/02/18 02:00-11:00 A
2003/03/11 00:00-09:00 N	2003/02/17 02:00-11:00 C
2003/03/10 00:00-09:00 N	[Off Line]
2003/03/09 00:00-09:00 N	From:2003/2/16 0:00
2003/03/08 00:00-09:00 N	To: 2003/2/16 9:00
2003/03/07 00:00-09:00 A	2003/02/15 02:00-11:00 B
2003/03/06 00:00-09:00 B	2003/02/14 02:00-11:00 A
2003/03/05 00:00-09:00 A	2003/02/13 02:00-11:00 A
2003/03/04 00:00-09:00 C	2003/02/12 02:00-11:00 A
2003/03/03 00:00-09:00 A	2003/02/11 02:00-11:00 A
2003/03/02 00:00-09:00 A	2003/02/10 02:00-11:00 C
2003/03/01 00:00-09:00 A	2003/02/09 02:00-11:00 A
	2003/02/08 02:00-11:00 A





Archived Data



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[Storm Predictions](#) / [Archived Data](#) UPDA / [CG Gallery](#) / [Latest JOVE Bulletin](#) / [Links](#)

[UFRO Spectrograph Data Archive](#) / [IJRO Video Camera](#) / [JOVE \(Jan.30,2005\)](#) / [Agawa Observatory](#)



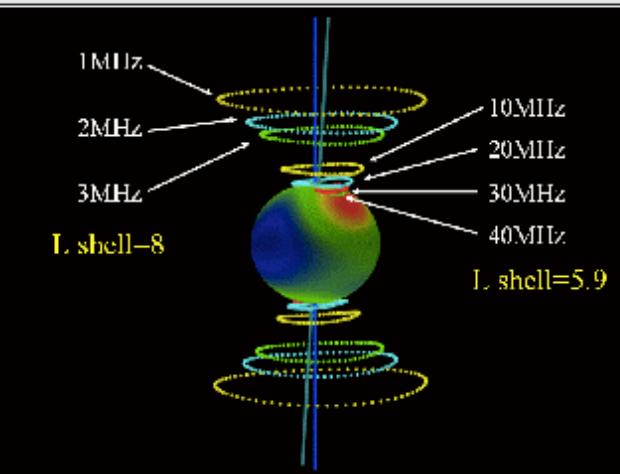
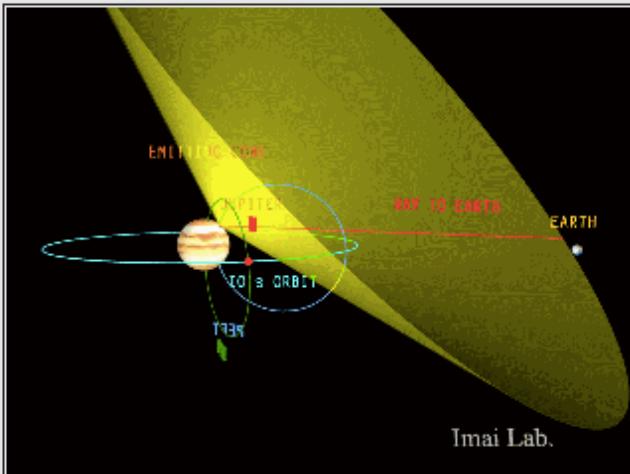
International Project by [UFRO](#) / [Kochi National College of Technology](#) / [NASA RadioJOVE](#) 046376

<http://jupiter.kochi-ct.jp/>

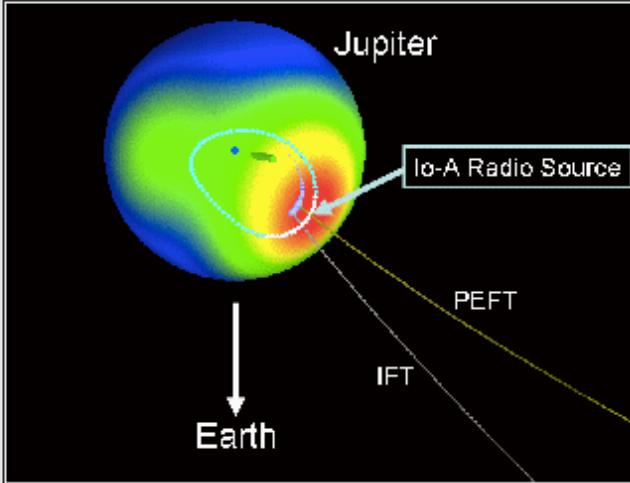
Jupiter Radio CG Gallery

Feel free to use these CG images for educational usage. [\[DISCLAIMER\]](#)

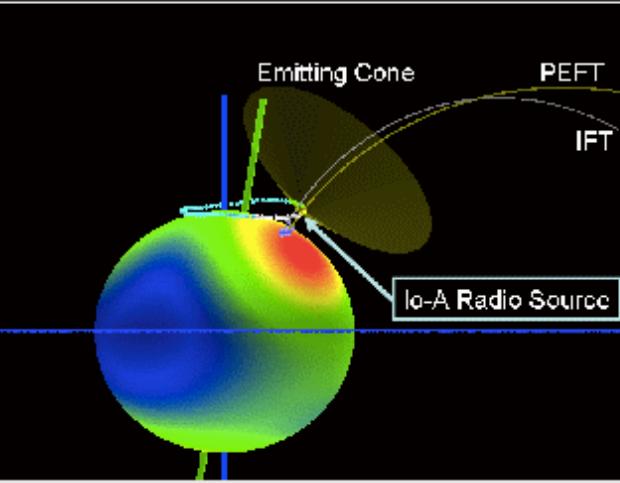
Please include the credit as of "by Imai Lab., Kochi National College of Technology".

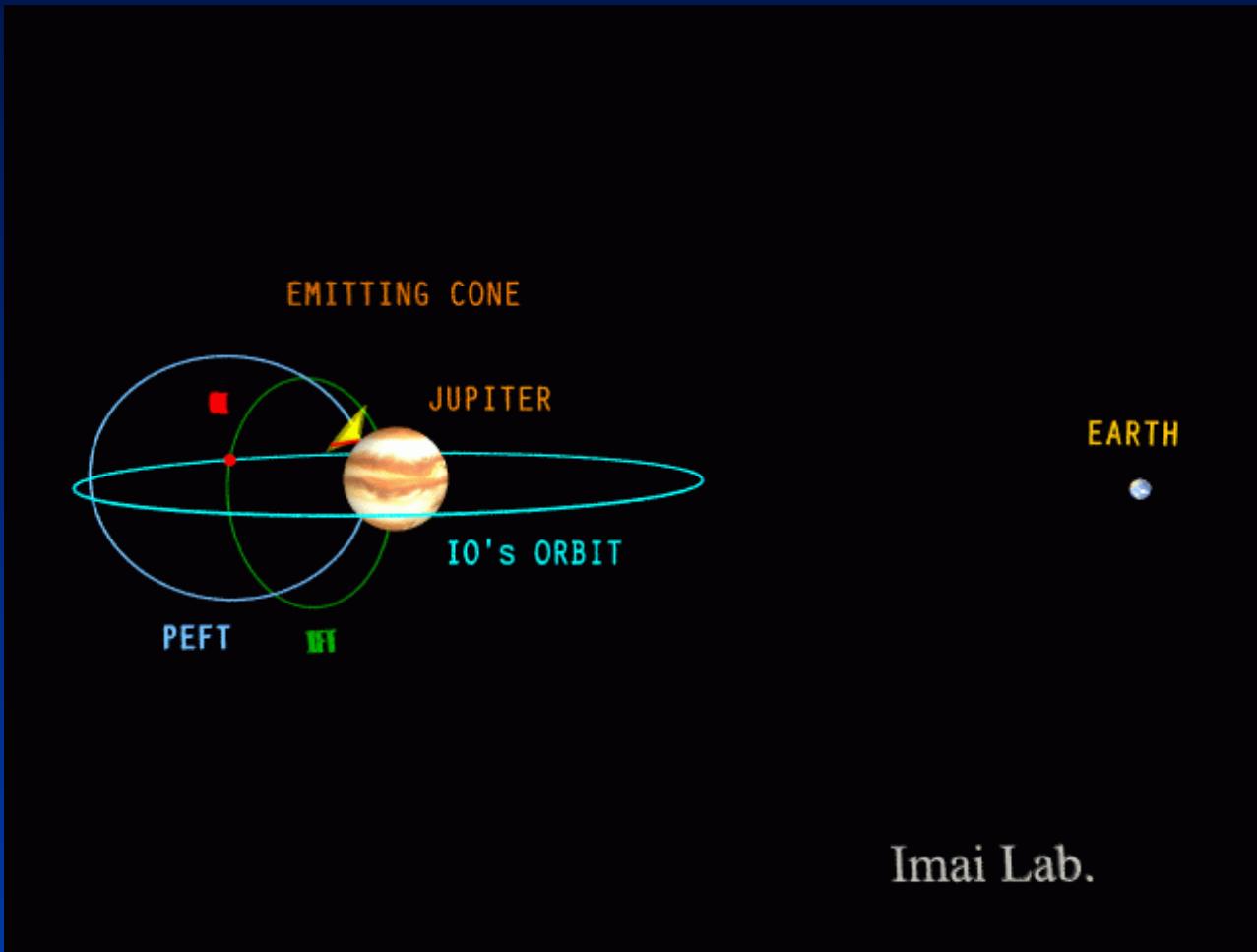


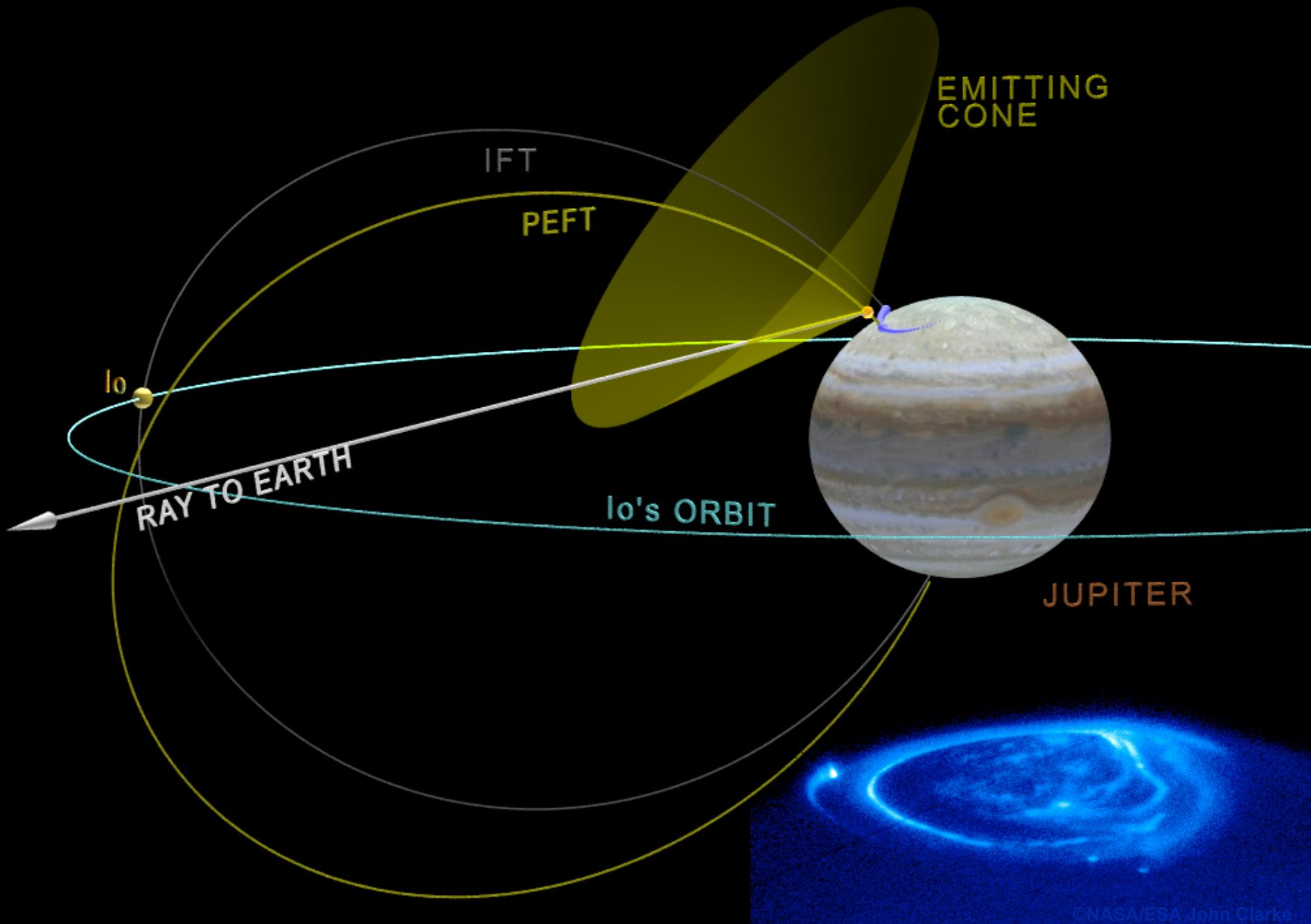
[Animations\(3.1MB\)](#)

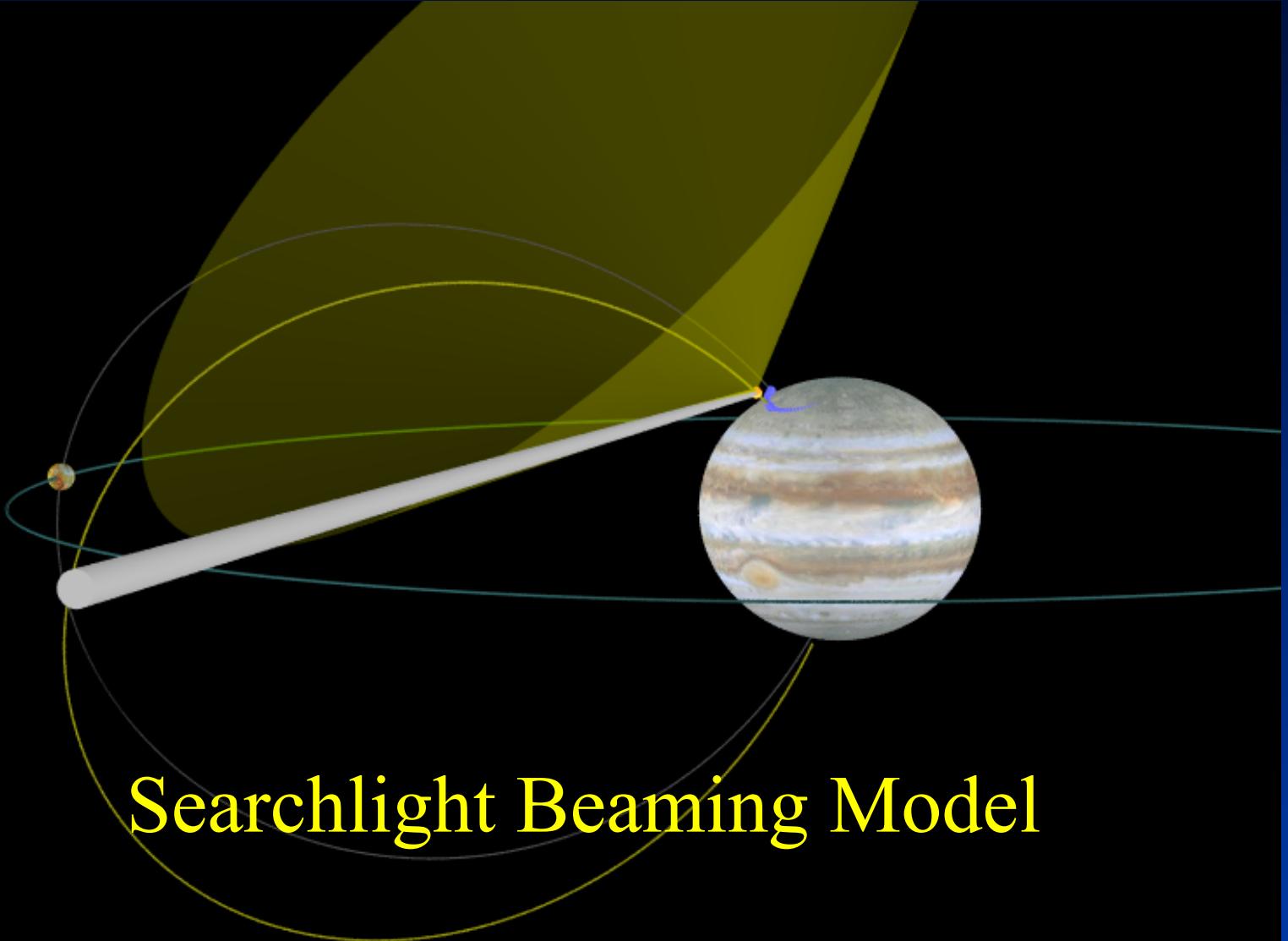


[Animations\(2.4MB\)](#)



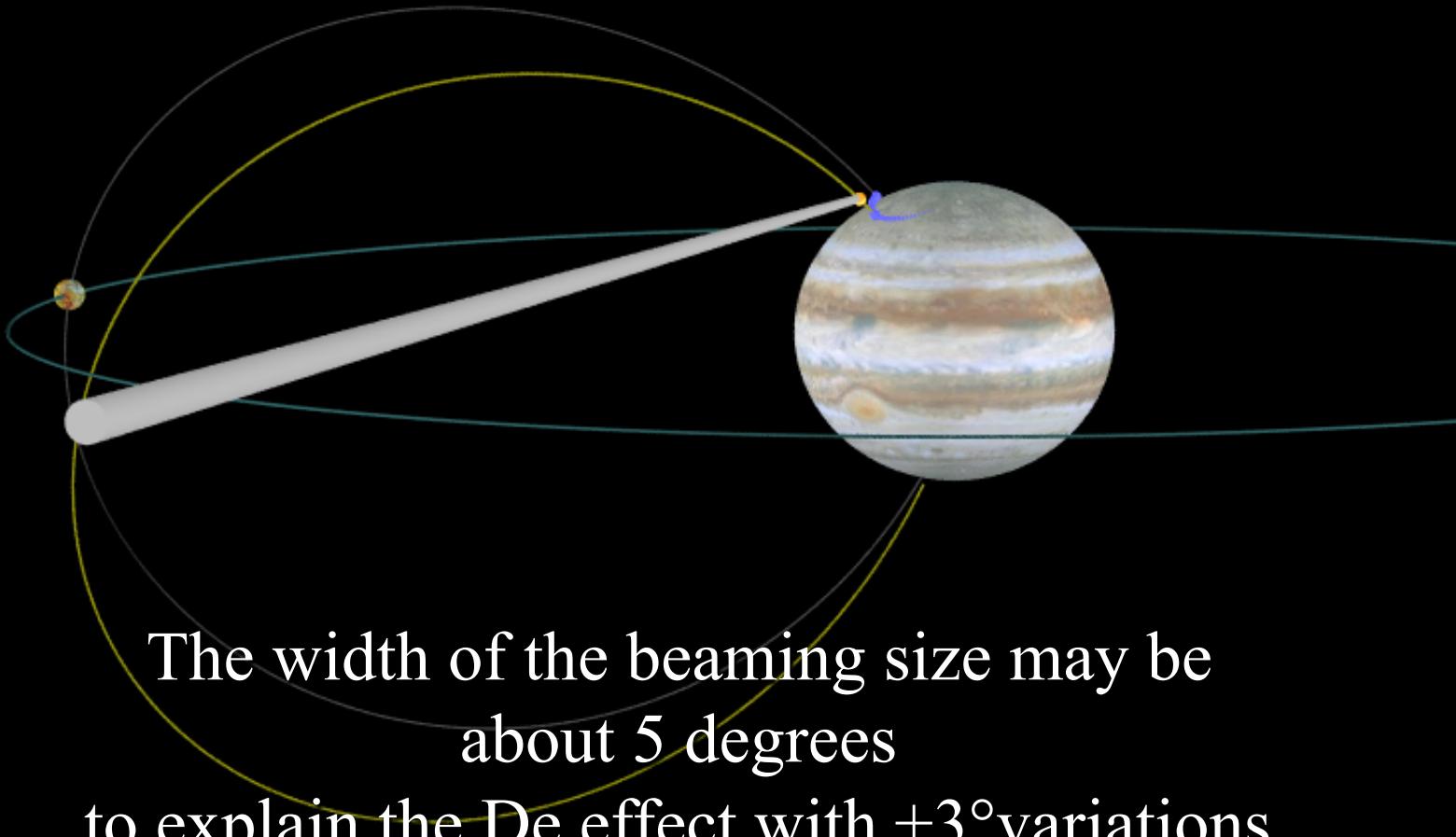






Searchlight Beaming Model

Searchlight Beaming Model



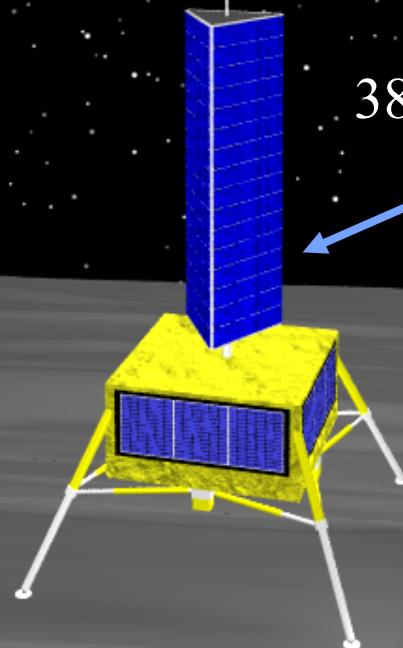
The width of the beaming size may be about 5 degrees to explain the De effect with $\pm 3^\circ$ variations.

Proposed Moon-Earth baseline Jupiter Radio VLBI

Jupiter

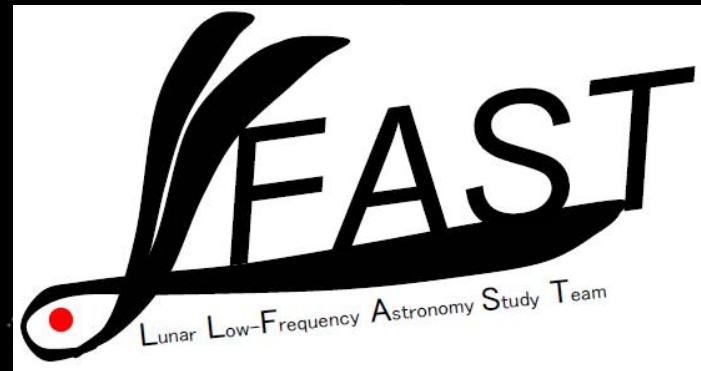


SELENE 2

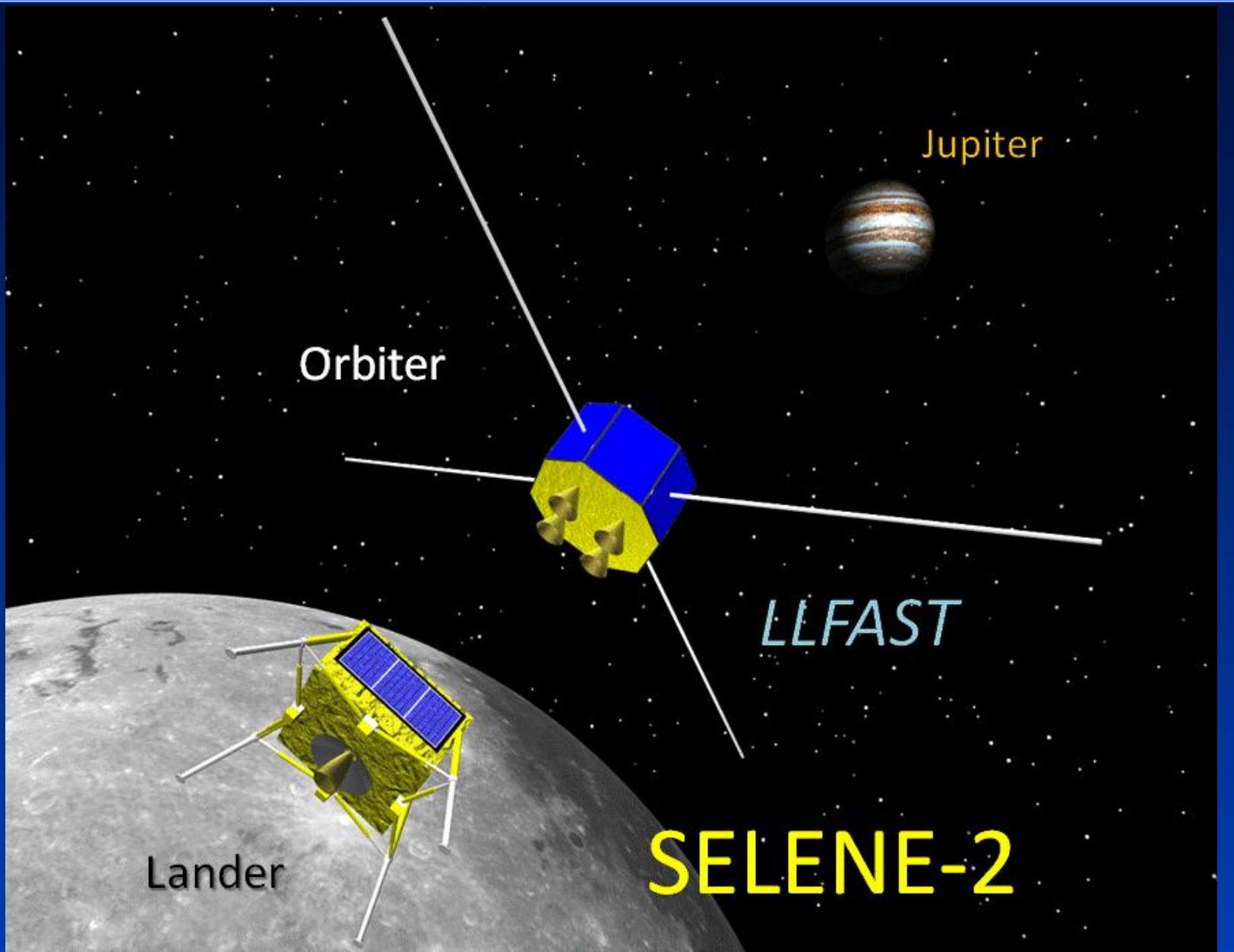


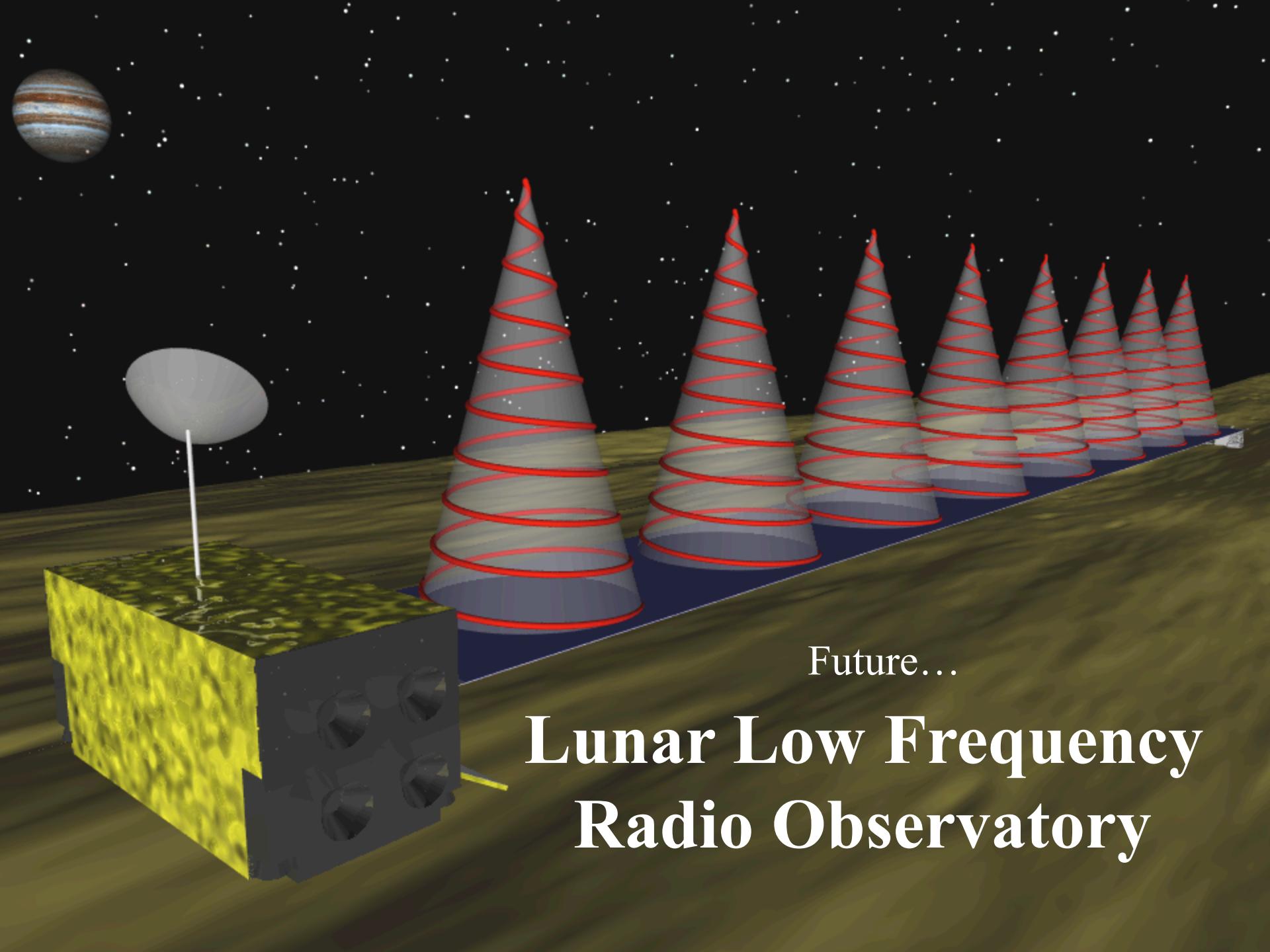
Moon

380000 km Base Line
20km(25MHz)
Earth



CG by Imai Lab.





Future...

Lunar Low Frequency Radio Observatory

第15回衛星設計コンテスト

2007年10月28日(日) 一橋記念講堂

日本太陽観測学会、電子情報通信学会、

地球電磁気・地球惑星圏学会、日本天文学会

