

Astro 101.001

Professor: Greg Taylor

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TA: Chris DiLullo (in RH111 on homework due days 4:30-5:30pm)

Course Goals: Extend your horizons

Class Web page: www.phys.unm.edu/~gbtaylor/astro101

Course Text: *At Play in the Cosmos*, Frank, Preliminary ed.

i-Clickers: YES, you need one. Bring it to every class.

Try LoboLog exchange at <http://www.lobolog.com>

Homework: Reading and Smartworks assignments (roughly weekly)

Grading: 12% class participation; 22% homework; 66% based on best 3 out of 4 tests. NOTE: there will be NO makeup tests.

Game: Extra credit. Details TBD.

Logged In As: **Guest**

⚙️ OPTIONS

⊗ QUIT GAME

CUSTOMIZE **LOADOUT**



SHIP NAME - **Epoch**

EDIT

AIRLOCKS

BRIDGE

DRONE BAYS

FTL ENGINES

ION THRUSTERS

SENSOR ARRAY

DEFENSE



**SAGAN CLASS
STARSHIP**

Built: Mars Station,
Length: 83 m, Weight:
10,600 Tons, Reactor:
Typhoon

SHIP **COLOR**



BACK

CONFIRM LOADOUT

Beta Preview 2016 08 12 1

Note: Download and login information to be provided later.

Instructions Cont.

Syllabus: handed out, on-line & posted in Upper-West case so be sure to read it.

Tests: bring two number 2 pencils. Multiple-Choice.

Office-Hours: Mondays 9-11am in PandA 180 or by appt.

Campus Observatory: Fridays 8-10pm now, 7-9pm MST

In Class: Do - Ask Questions, Challenge unbelievable statements, Be Curious about the Universe

Do Not - Talk, use phones, or play video games during lectures - be courteous to your fellow students

How to Register your Clicker (and avoid the \$10 fee from iclicker)

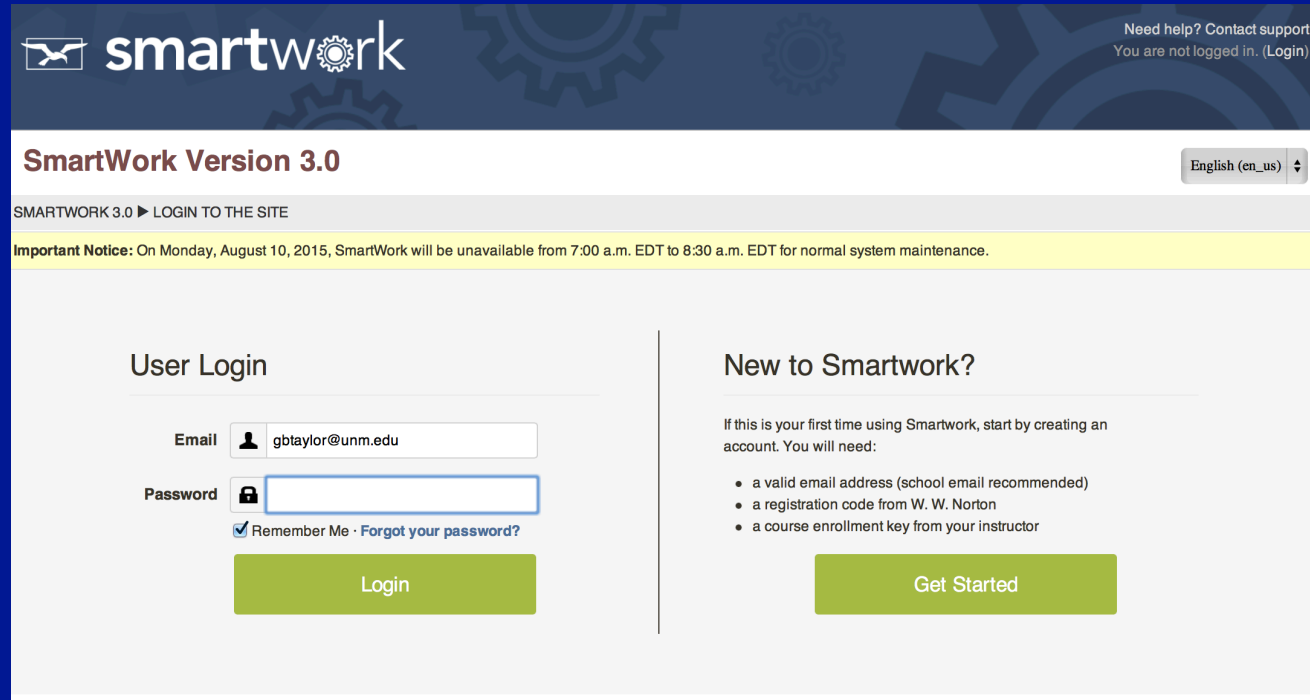
1. Go to:
<http://learn.unm.edu>
2. Log in with your UNM netID and navigate to this course
3. Fill in your remote ID. If it has worn off, come see me after class.

The screenshot shows the UNM Learn interface. The top navigation bar includes the UNM logo, the word "Learn", and a user profile for "Demo User" with a red "5" badge. Below this, there are links for "My Learn" and "Support". A breadcrumb trail indicates the current location: "(Course is unavailable to students) > i>clicker Student Registration". A "Return To Instructor View" button is also present. On the left, a sidebar menu for "ASTR-101-001 (Fall 2015)" lists options like "Course Dashboard Astro 101", "Course Information", "How to Use Learn", "Create a Support Ticket", "i>clicker registration", "University Libraries", and "grades". The main content area is titled "i>clicker Student Registration" and includes a sub-header: "Use this form to register your i>clicker remote/GO ID. Once registered, your i>clicker ID is registered for all your classes. [More Help](#)". A note states: "* Indicates a required field." The form contains a "Cancel" button and a "Submit" button. Below this is a section for "I>CLICKER ID" with instructions: "Enter your 8-character i>clicker Remote ID or 12-character i>clicker GO ID below. You may register multiple remotes/i>clicker GO accounts or remove a registration entry at any time." There is a text input field for "i>clicker Remote/GO ID:" with a blue border. Below the input field, a note says: "Click **Submit** to proceed. Click **Cancel** to go back." At the bottom, there is a table with columns "i>clicker ID", "Registration Date", and "Action". The table contains one row: "1452692F", "July 28, 2015", and "Remove". Below the table, there are two sections labeled "i>clicker 1" and "i>clicker 2", each showing a small image of a clicker device.

i>clicker ID	Registration Date	Action
1452692F	July 28, 2015	Remove

How to Register on SmartWork Version 3.0

1. Go to:
[http://
smartwork.wwnorton.co
m/sw/login/index.php](http://smartwork.wwnorton.com/sw/login/index.php)
2. Use your UNM e-mail for the “Login Name”
3. Enrollment key is:
UNDUNIV210282
4. Registration Code is
DCEZ-IXIC
5. Use your BANNER ID for the Student ID



The screenshot shows the SmartWork Version 3.0 login interface. At the top, there's a header with the SmartWork logo and a language selector set to English (en_us). Below the header, a banner indicates an important notice: "On Monday, August 10, 2015, SmartWork will be unavailable from 7:00 a.m. EDT to 8:30 a.m. EDT for normal system maintenance." The main content area is divided into two sections. The left section, titled "User Login", contains fields for "Email" (with the value "gbtaylor@unm.edu") and "Password", a "Remember Me" checkbox, a link for "Forgot your password?", and a green "Login" button. The right section, titled "New to Smartwork?", provides instructions for first-time users and lists three requirements: a valid email address, a registration code, and a course enrollment key. It includes a green "Get Started" button.

Note DCEZ-IXIC was temporarily broken yesterday. Should be working now.

New account

SMARTWORK 3.0 ► LOGIN ► NEW ACCOUNT

Choose your email address and password

Email address *

lwa@unm.edu

Email (again) *

lwa@unm.edu

Password *

.....

☐ Unmask

*Password must must be at least 8 characters and contain at least 1 uppercase letter, 1 lowercase letter, and 1 number.

More details

First name *

Radio

Last name *

Telescope

City/town *

Albuquerque

Country *

United States ▼

State/Province *

New Mexico (NM) ▼

School/University *

Univ Of New Mexico ▼

Student ID

123456789

Create my new account

Cancel

Your registration has been confirmed

Thanks, Radio Telescope

Your registration has been confirmed

Login

SmartWork Version 3.0

Norton Support

Need help? Contact support
Registration Code Lookup

Main menu

SITE NEWS

Anthropology	14
Astronomy	103
Biology	84
Chemistry	269
Economics	2
FAN (Faculty Advocate Courses)	3
Generic Economics (self-study only)	3
Geology	41
Organic Chemistry	99

SmartWork Version 3.0

[Norton Support](#) ^[Need help? Contact support](#)
[Registration Code Lookup](#)[Main menu](#) ^ [SITE NEWS](#)[Univ Of New Mexico, Astro 101, Fall 2016, Prof. Taylor](#)Instructor: [Gregory Taylor](#)

Search courses:

[Go](#)[All courses](#)

Note Smartwork 3.0 (new 5.0 is not yet ready)

Note – It's free for us, do not pay! Do not create multiple accounts!

[Univ Of New Mexico, Astro 101, Fall 2016, Prof. Taylor](#)

Instructor: [Gregory Taylor](#)



Please do not click **Refresh** during the enrollment and registration process.

Enter the **enrollment key** you received from your instructor.

Enrollment key:

case-sensitive

Enter the **registration code** bundled with your textbook, or buy one from Norton's [Student Store](#). (You will need to create a shopping cart account for online purchases. Your registration code will be in your confirmation email if you purchased online.)

Registration code:

(sample: XXXX-XXXX)

Don't have a registration code? Use our free 3-week trial access. After the trial period expires, you will need to enter a registration code to continue using this course.

Univ Of New Mexico, Astro 101, Fall 2016, Prof. Taylor

SMARTWORK 3.0 ► WWN10282

eBook



REGISTER YOUR EBOOK

Activities



FORUMS



RESOURCES



SMARTWORK ACTIVITIES

Administration

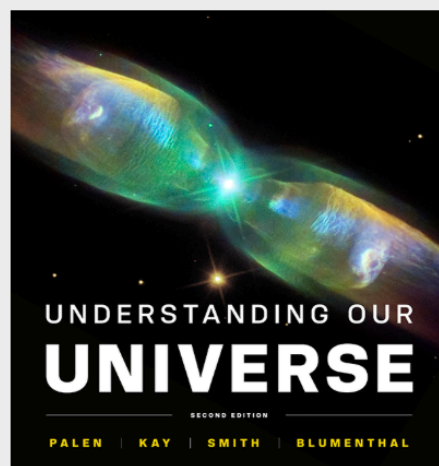


GRADES



PROFILE

SmartWork for *Understanding Our Universe*, Second Edition



Understanding Our Universe Student Site Featuring Videos, Animations, and Nebraska Simulations

News forum

HW#1 , will be available on Tuesday, August 23, 2016, 03:20 AM

FOR INSTRUCTORS



QuickStart Guide and Help Notes

Contact Technical Support

Upcoming Events



HW#1 (SmartWork opens)
Tuesday, August 23

HW#1 (SmartWork closes)
Tuesday, August 30

HW#2 (SmartWork opens)
Tuesday, August 30

HW#2 (SmartWork closes)
Thursday, September 8

[Go to calendar...](#)
[New Event...](#)

Calendar



◀ August 2016 ▶

Sun Mon Tue Wed Thu Fri Sat

A Quick Tour of the Universe (and this course)

ratione salva manente, nemo enim contemnitior allegabit
 q̄ ut magnitudinis orbium multitudo ipis motibus, ordo spha-
 rarum sequatur in hunc modum: a summo capientes incipimus.
 prima et
 si

1 Stellarum fixarum sphaera immobilis

suprema omnium est stellarum
 fixarum sphaera separata
 et omnia continens

Itaque immobilis

et omnes uni-
 versus locus

ad quem

motus

est

P

O

2 Saturnus xxx anno revolvitur

3 Iovis xij annorum revolutio

4 Martis biennio revolutio

5 Telluris cum Luna anno

6 Veneris non mense

7 Mercurij xix diebus

sol

syderum
 revolutio

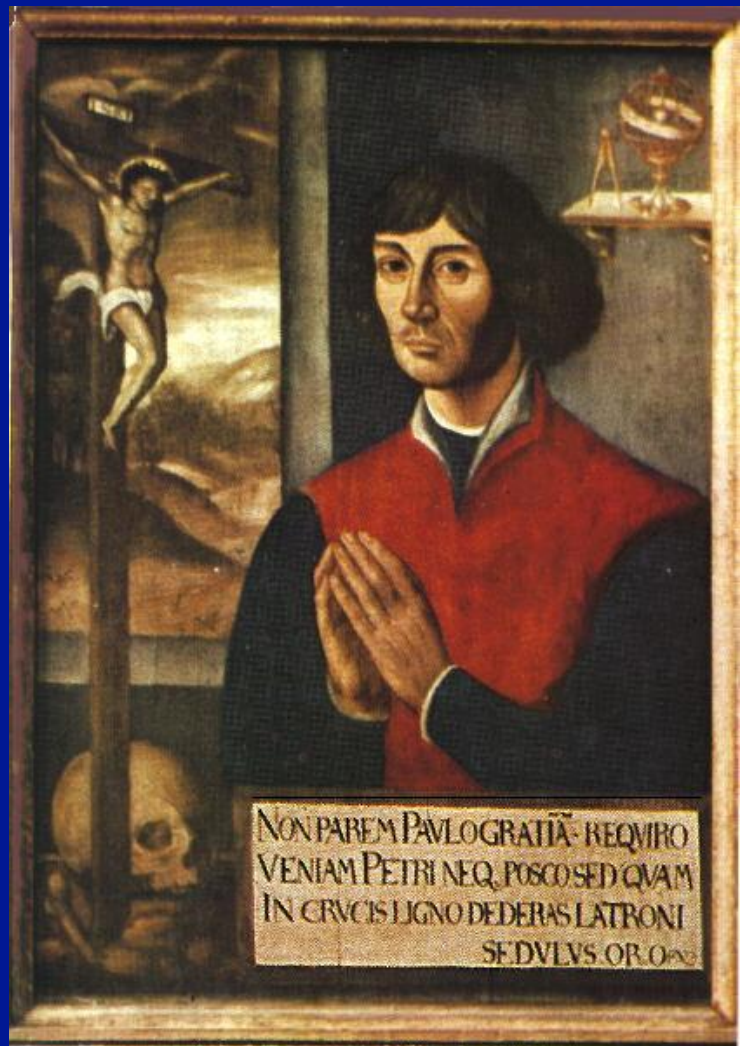
Nam quod

aliquo modo illa

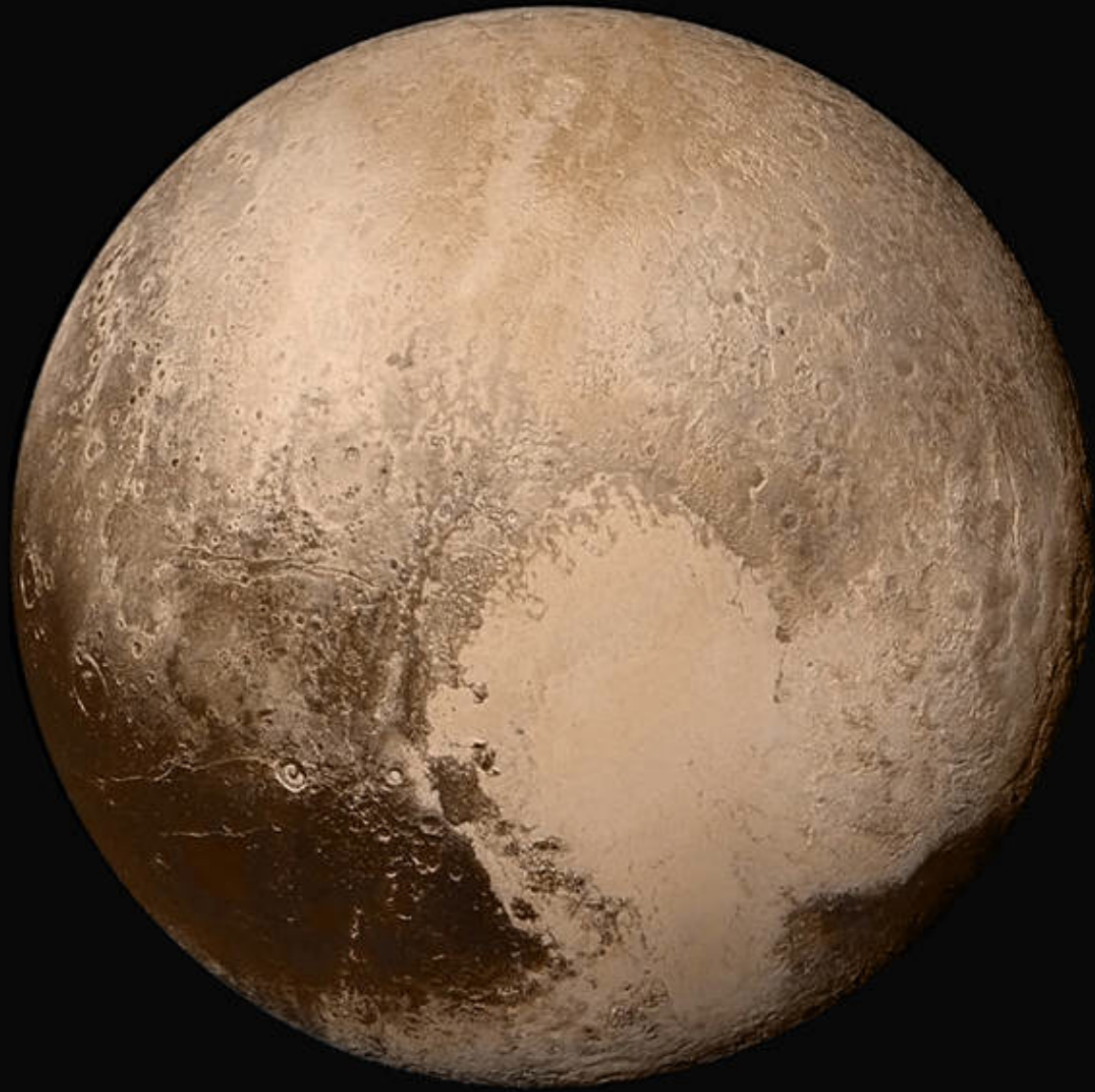
etiam mutari existimat

nos alia, rursus de apparet

aliqui
 in deductione motus terrestis assignabimus causam. Sequitur
 errantium primus Saturnus: qui xxx anno suum complet circuitu
 ita post hunc Iovis duodecimale revolutio mobilis. Deinde
 Mars velle qui biennio circuit. Quartum in ordine aëre revolu-
 tio locum optinet: in quo terra cum orbe lunari tamq̄ quicquid
 contineri diximus. Quinto loco Venus nono mense revolvitur



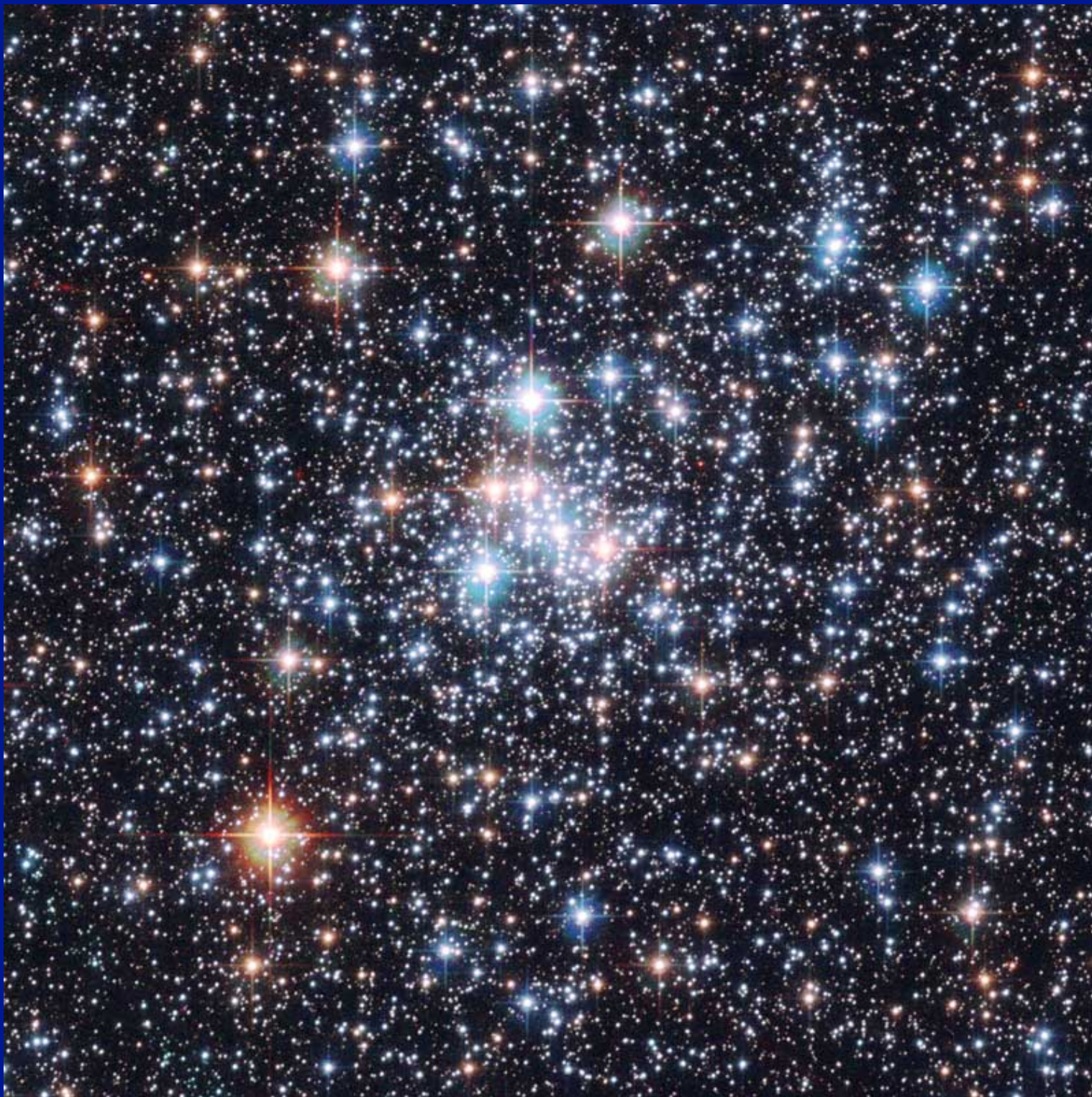
NON PAREM PAVLOGRATIA REQUIRO
 VENIAM PETRI NEQ. POSCO SED QVAM
 IN CRVCIS LIGNO DEDERAS LATRONI
 SE DVLS OR. O



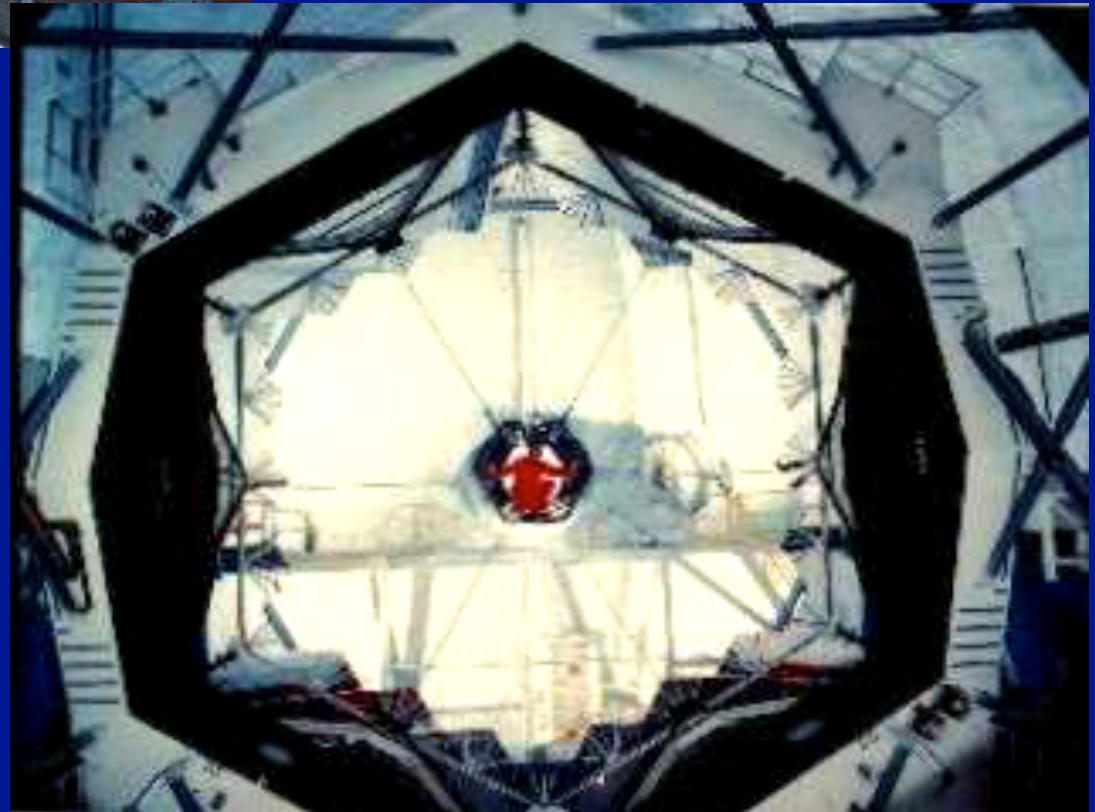




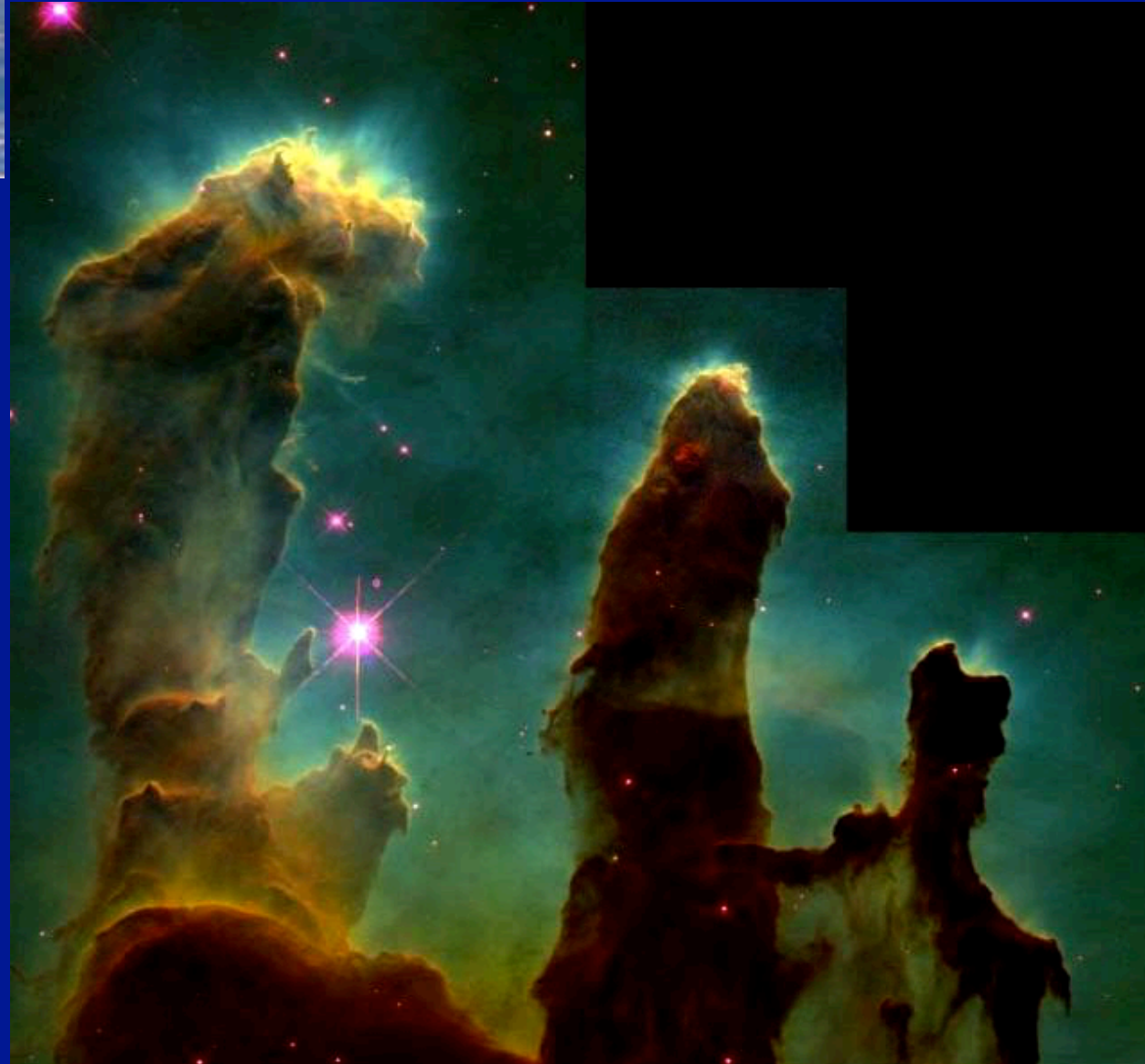




Keck Telescopes

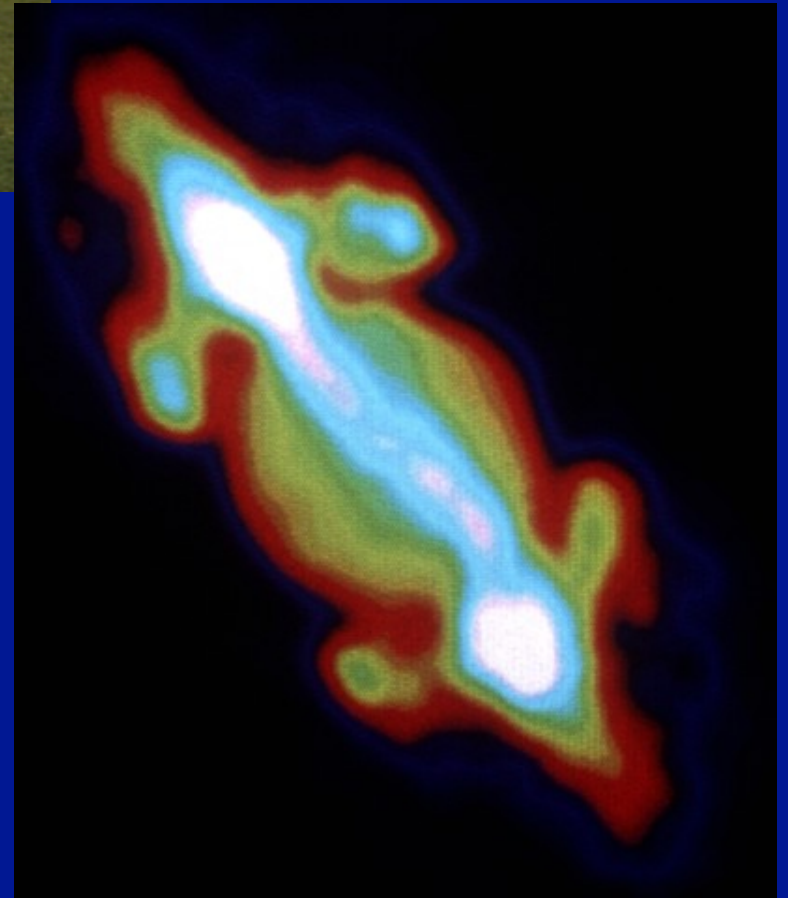


Hubble Space Telescope





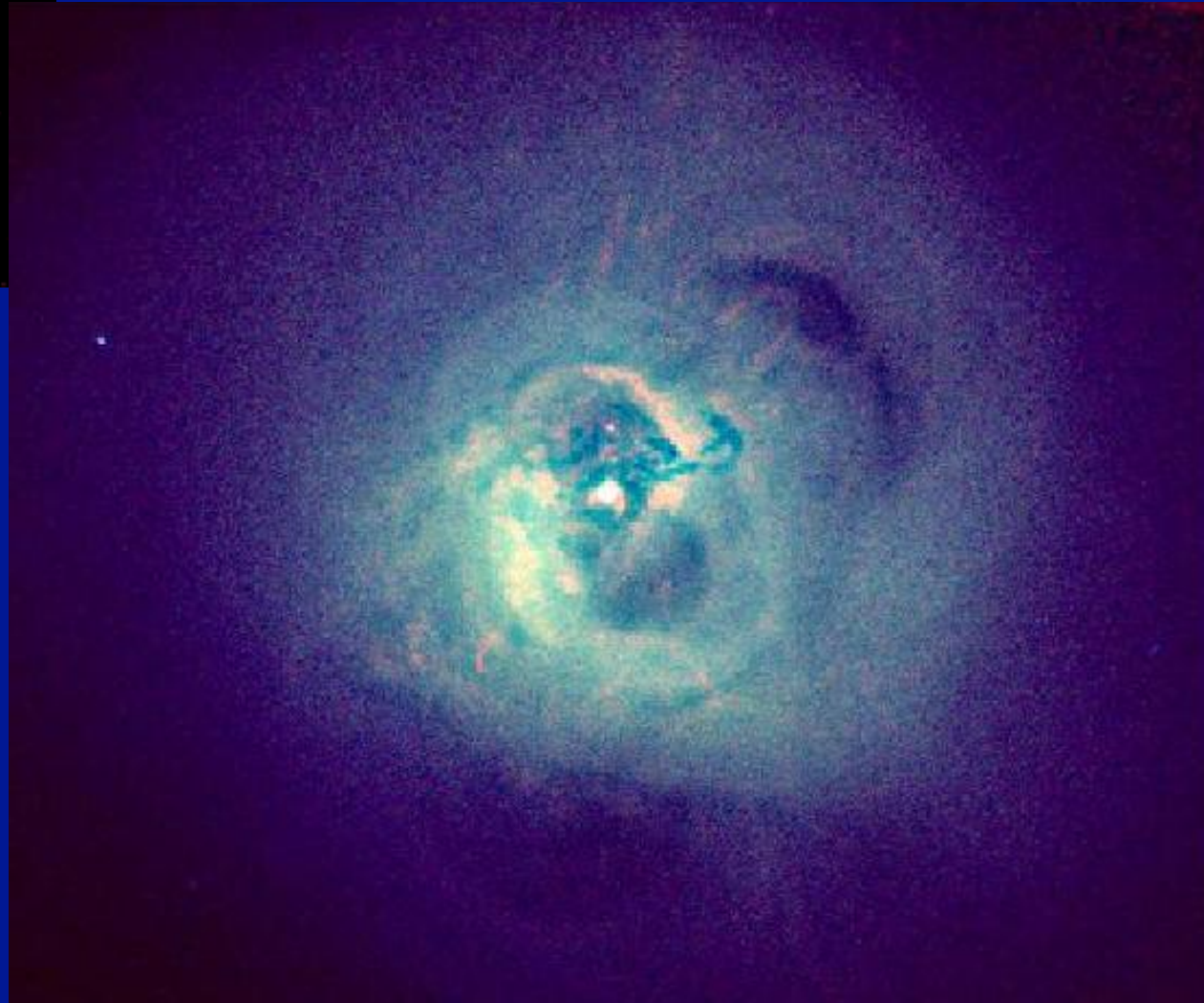
Very Large Array
(VLA)



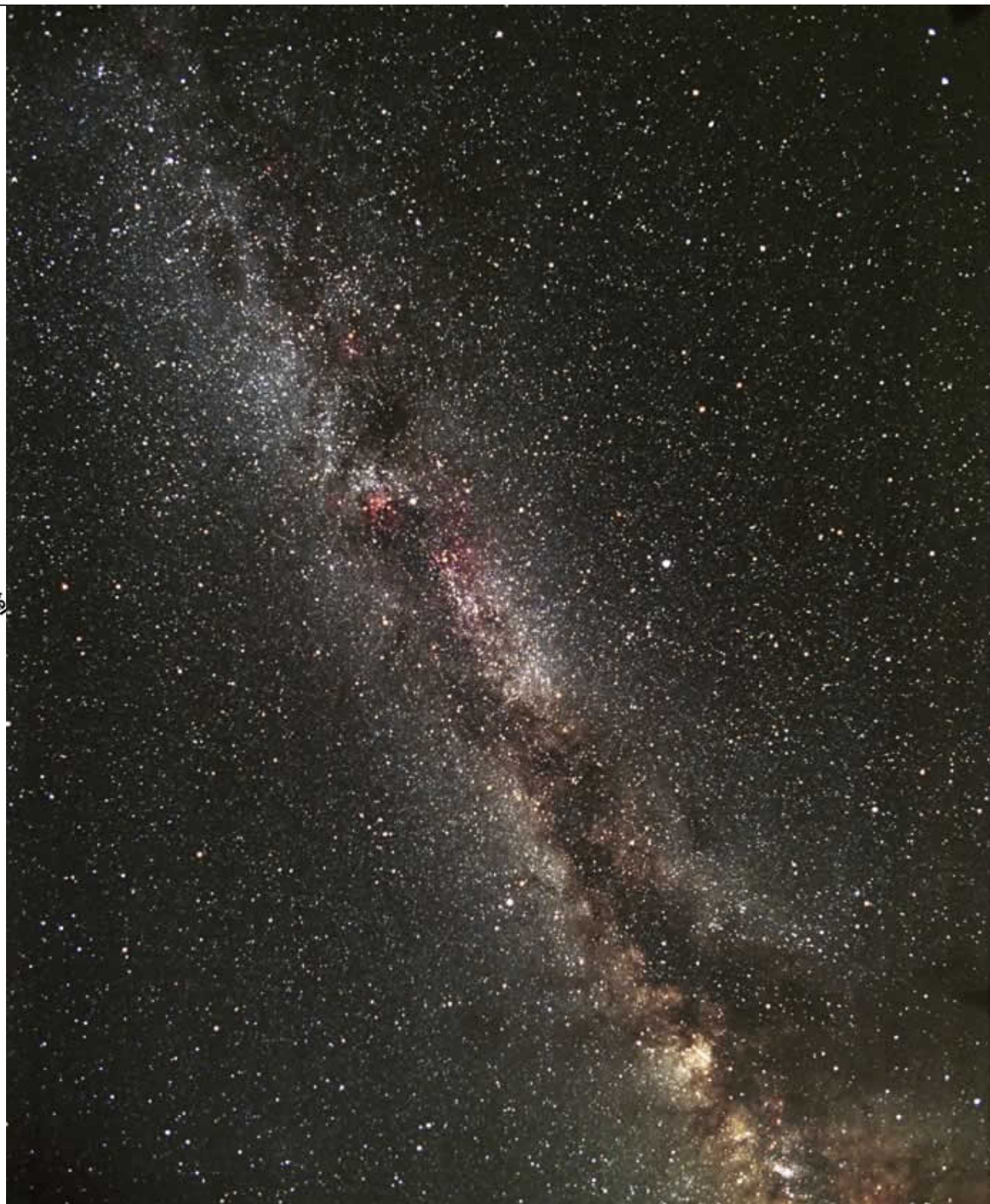
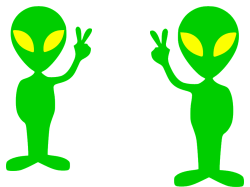
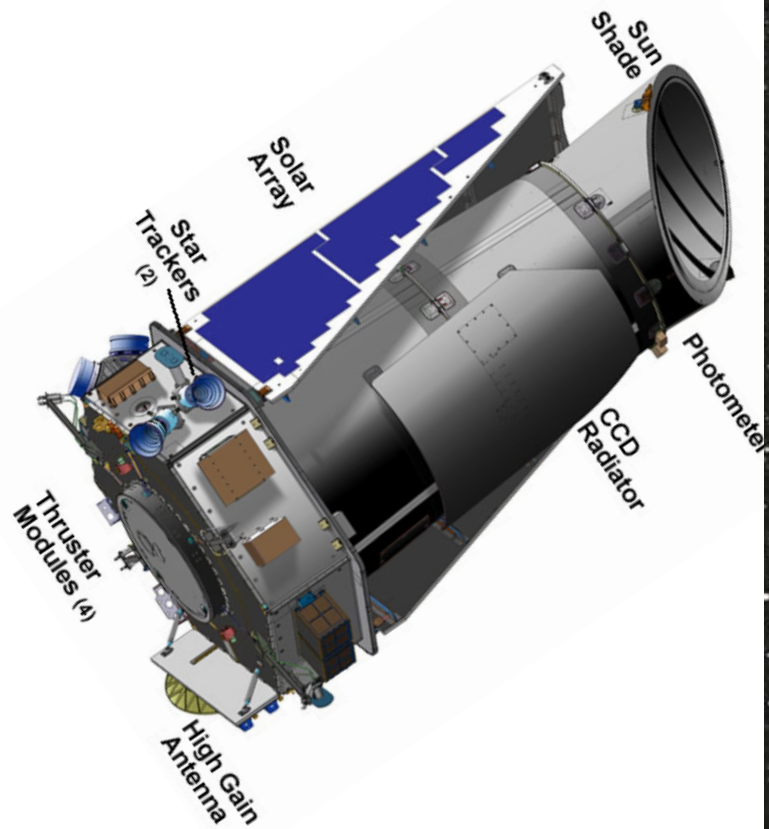
Chandra X-ray Observatory



Perseus Cluster



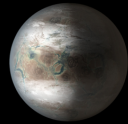
Kepler Telescope



Kepler's Small Habitable Zone Planets

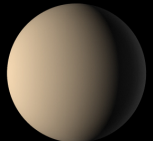
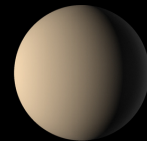
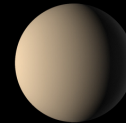
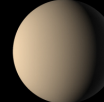
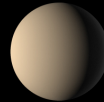
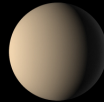
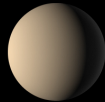
Planets enlarged 25x compared to stars

G Stars



Kepler-452b (Earth)

K Stars



Kepler-442b

155c

235e

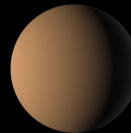
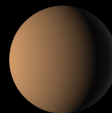
62f

62e

283c

440b

M Stars



Kepler-438b

186f

296e

296f

First Long Wavelength Array Station (LWA1) Site

April 2010



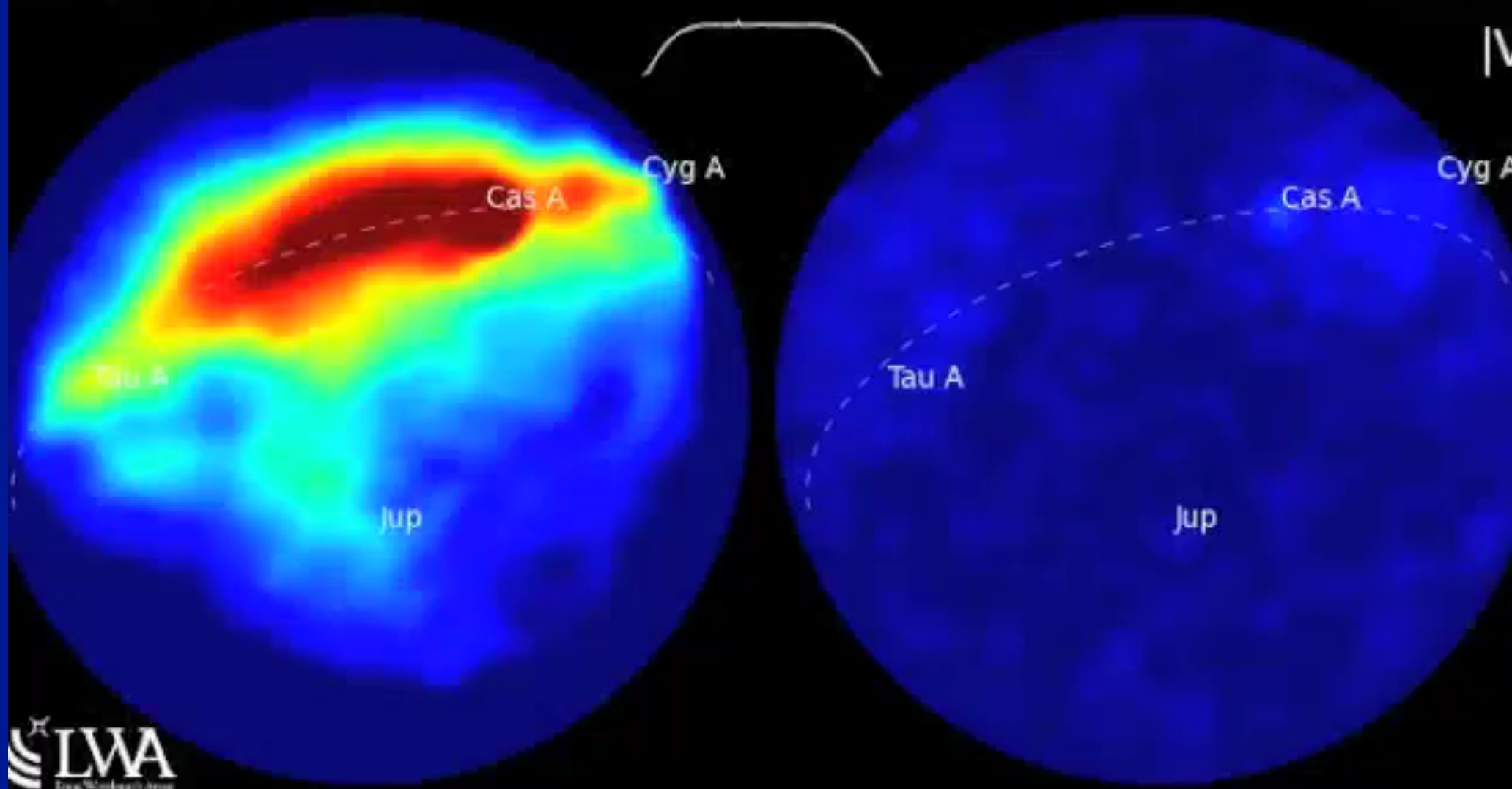
First Long Wavelength Array Station (LWA1) Site



LWA1 Movie

011-12-31 02:37:56 UTC

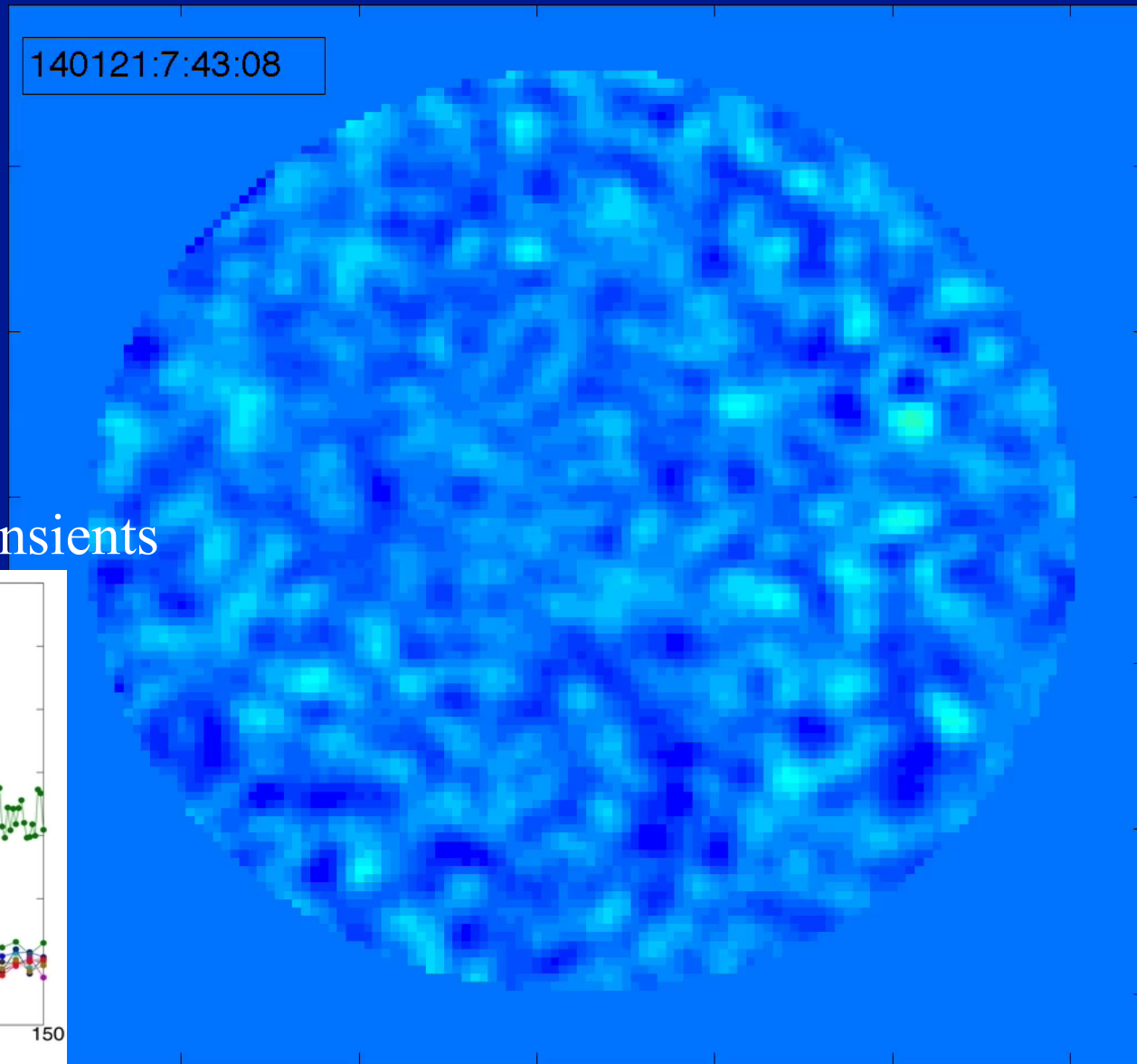
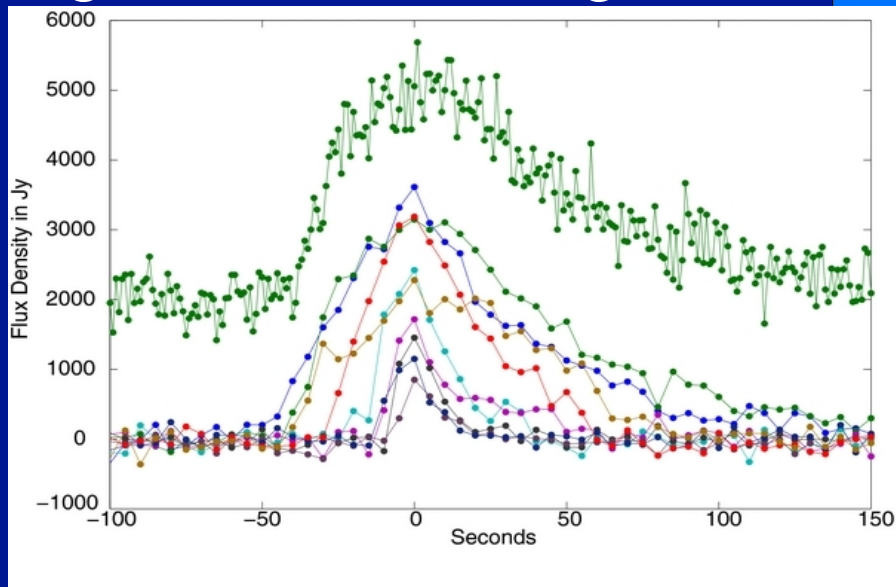
25.6 MHz



Great Balls of Fire!

Obenberger et al. 2014

Light curves of the brightest transients



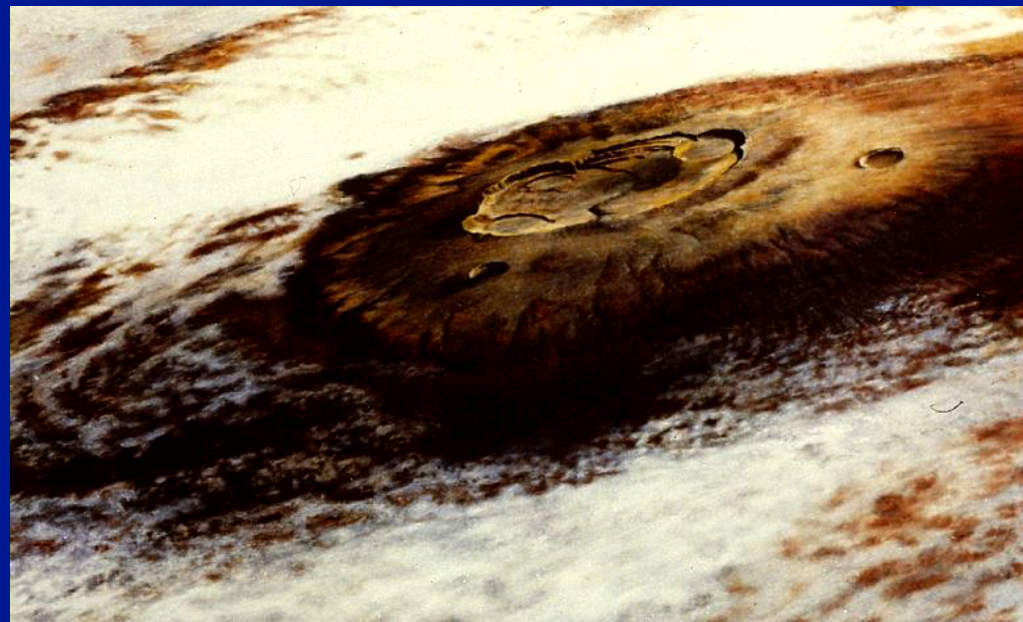
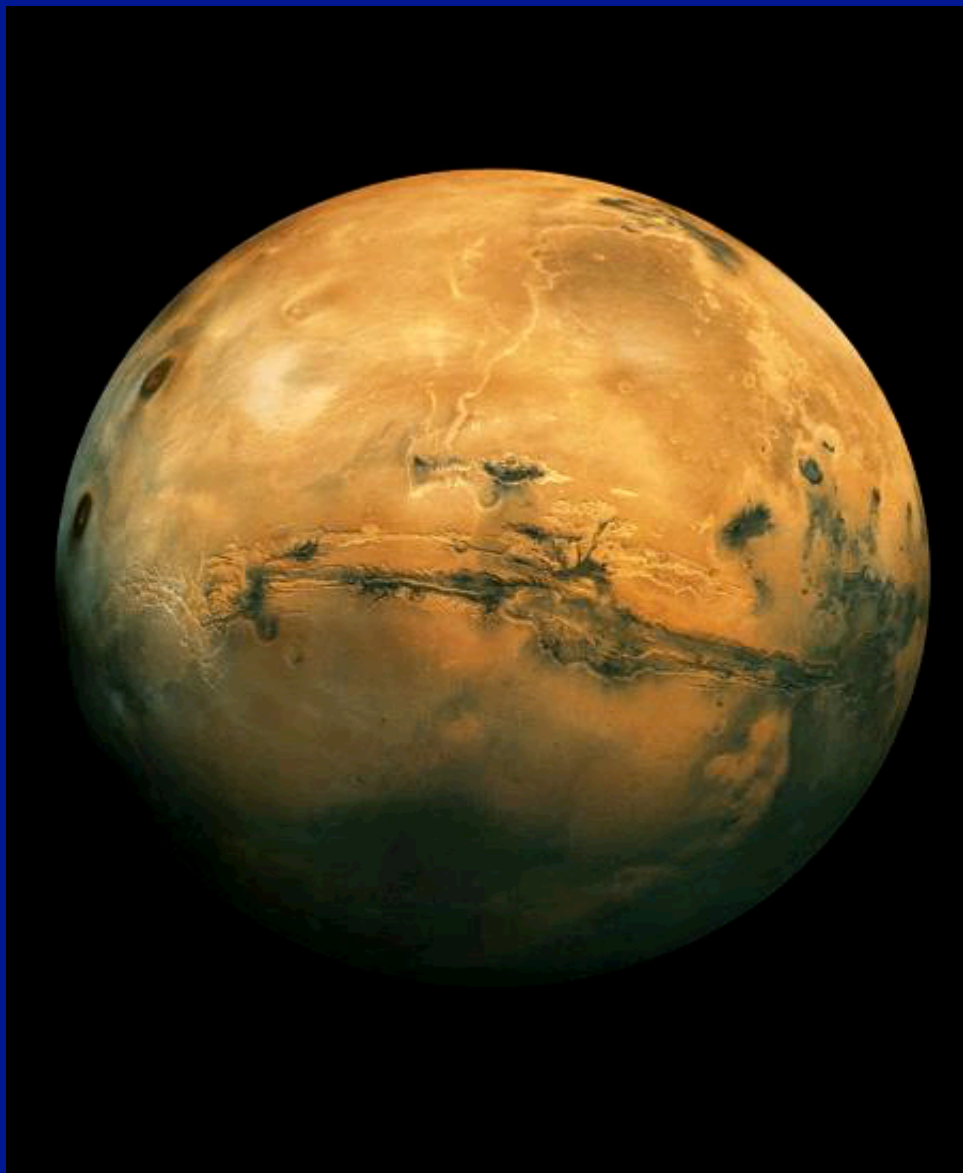
Second LWA station in New Mexico at Sevilleta July 2015

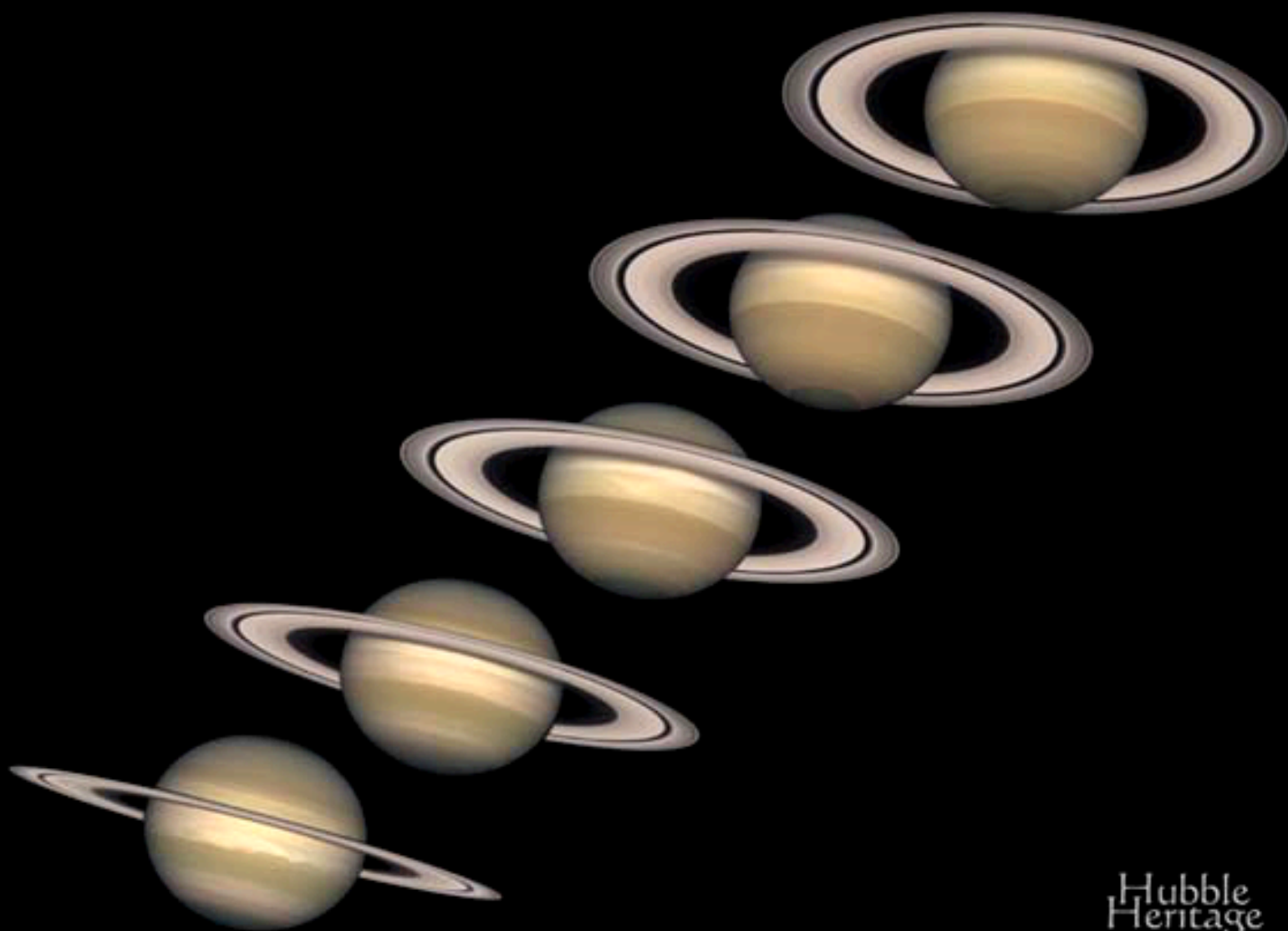


21 cm Array in Western China (Xinjiang)

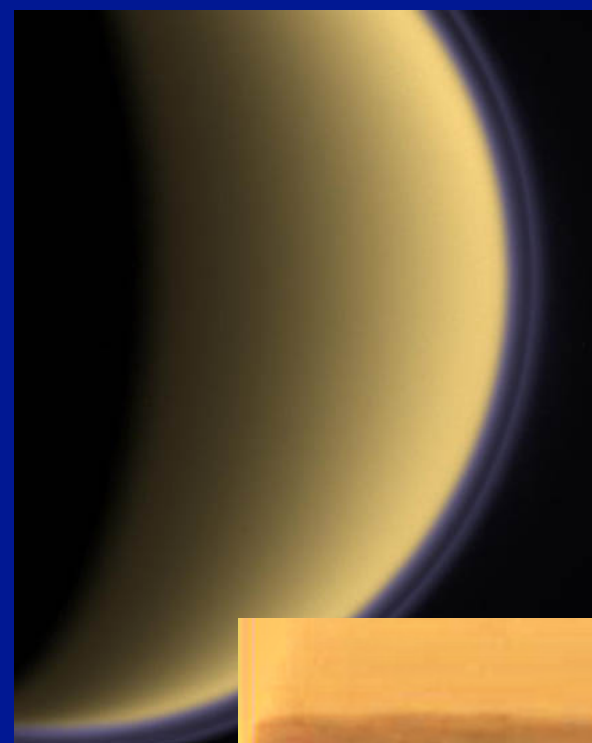
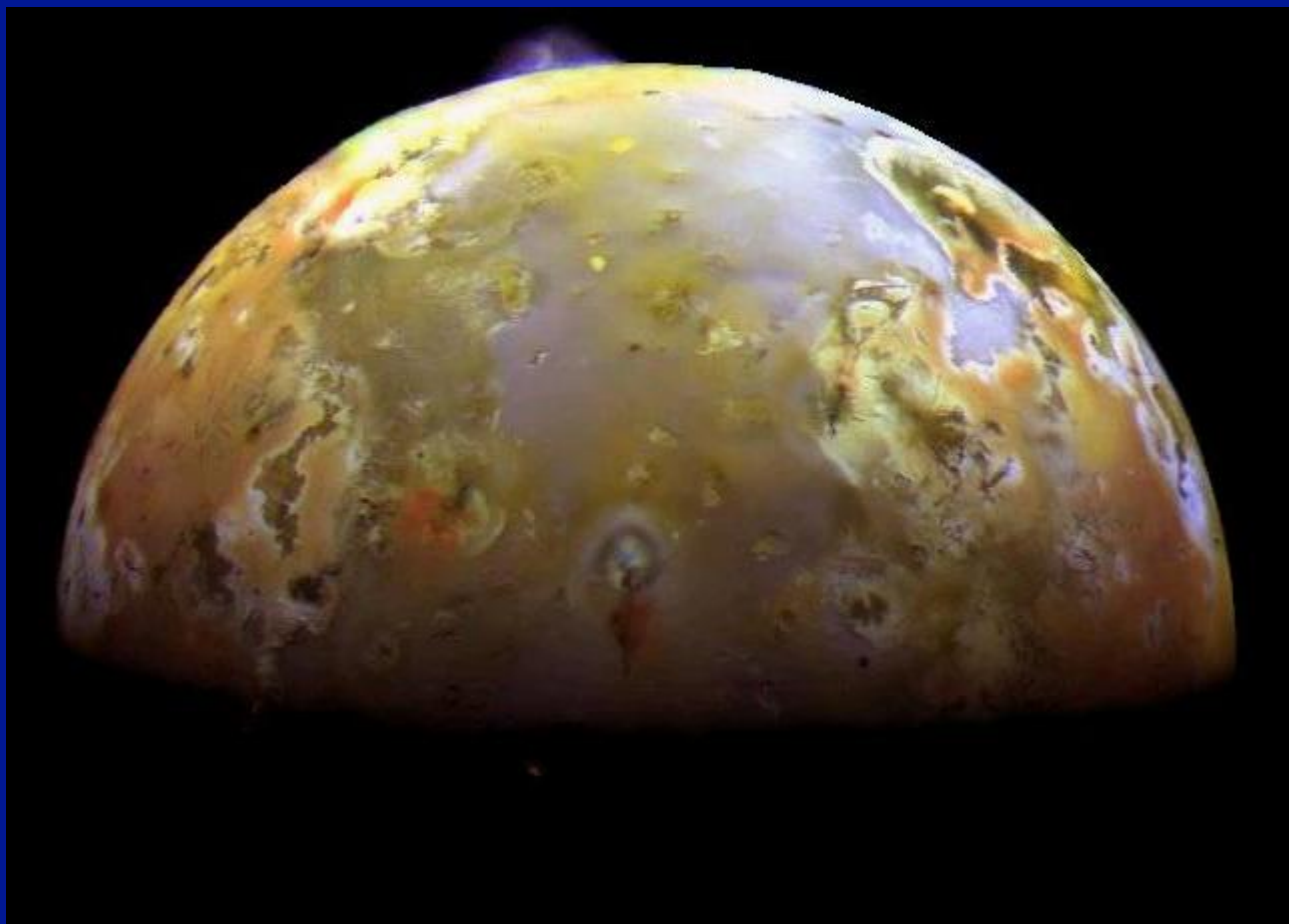


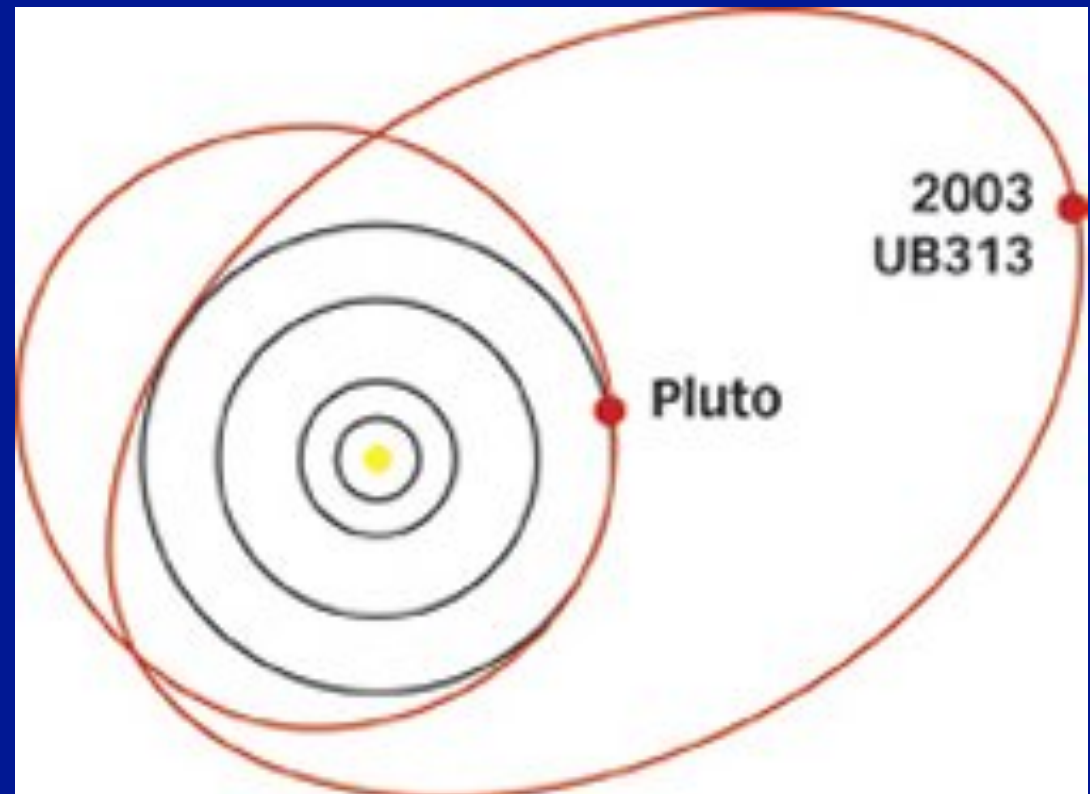
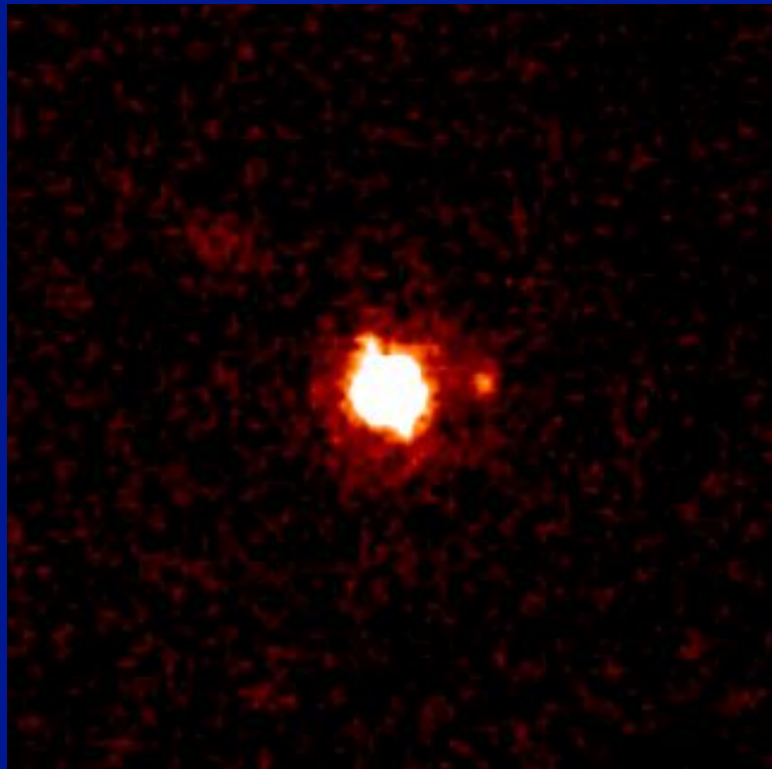






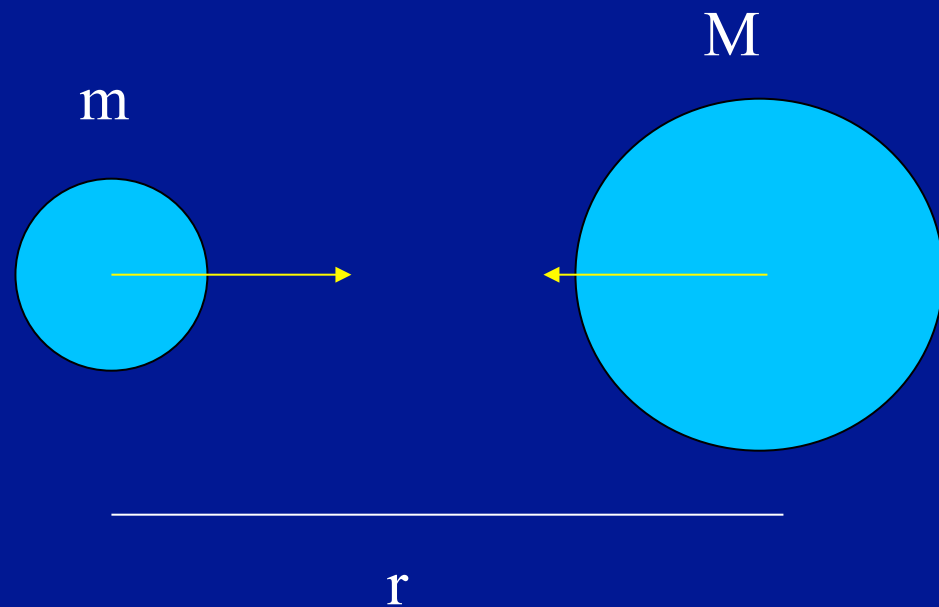
Hubble
Heritage





Gravity

$$F = \frac{G M m}{r^2}$$





Sample Clicker Question #1:

How long does it take for the Earth to go around the Sun?

A: 1 hour

B: 1 day

C: 1 month

D: 1 year

E: Forever, the Sun goes around the Earth.

Sample Clicker Question #2:

Why are you taking this class?

A: Fulfills a science or other requirement

B: Always been interested in Astronomy

C: Heard it was really easy

D: Somebody told me to take it

E: Other reason

Sample Clicker Question #3:

What is the current phase of the moon?

A. New

B. First quarter

C. Full

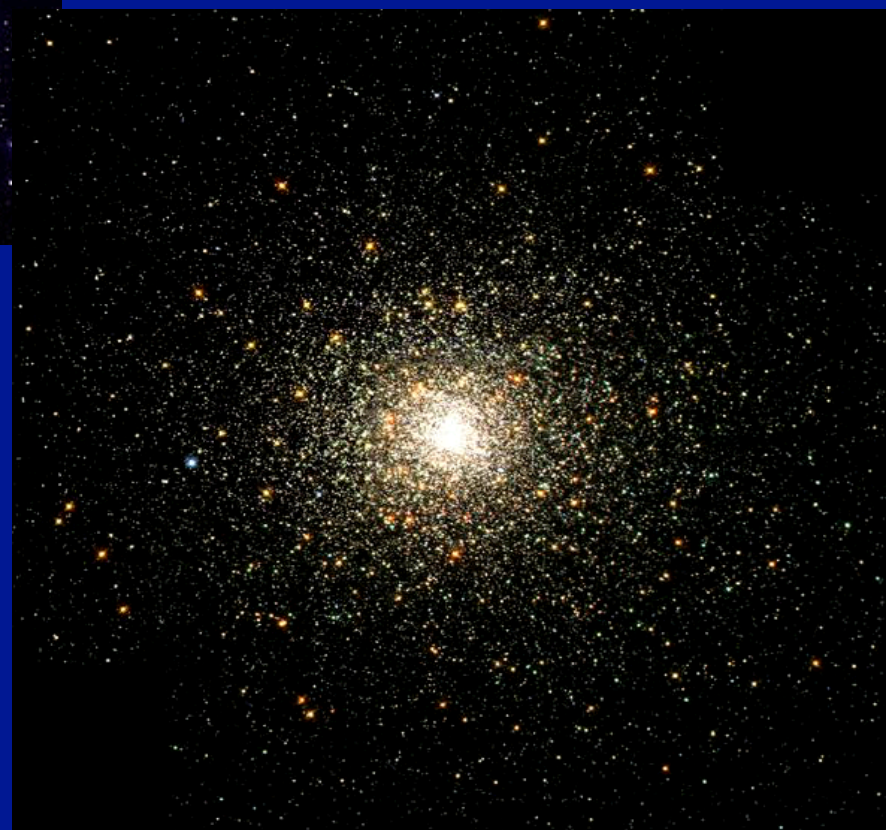
D. Third quarter

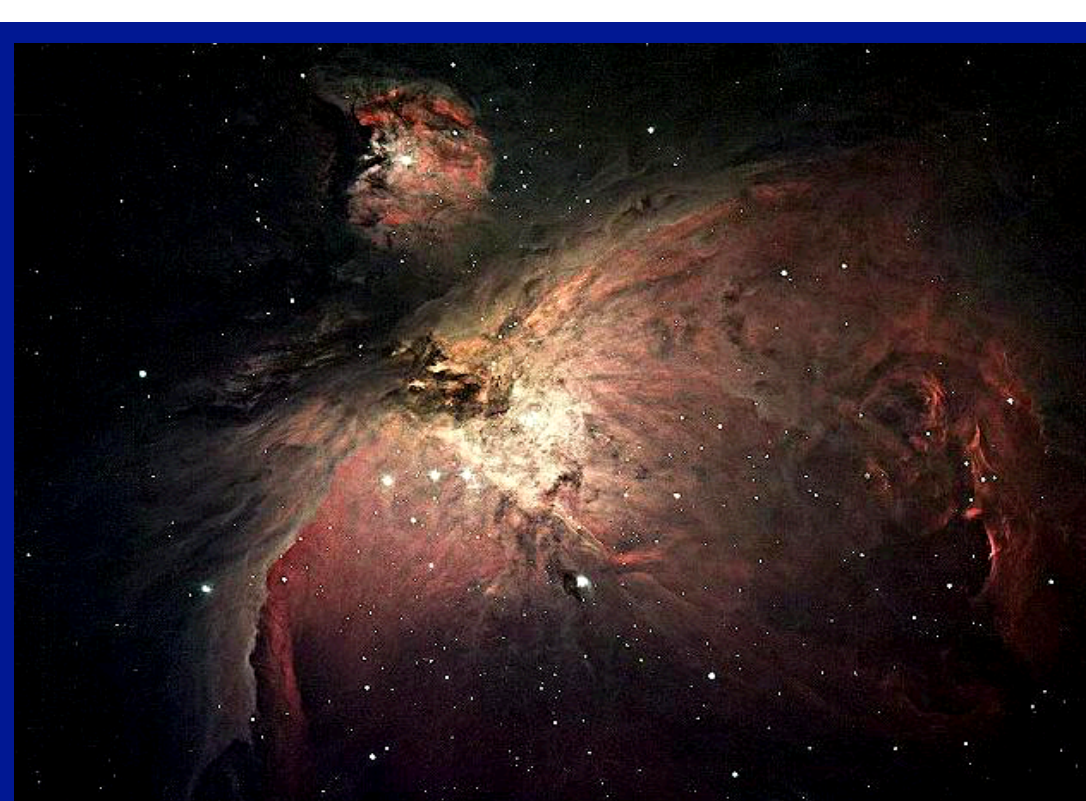
Sample Clicker Question #4:

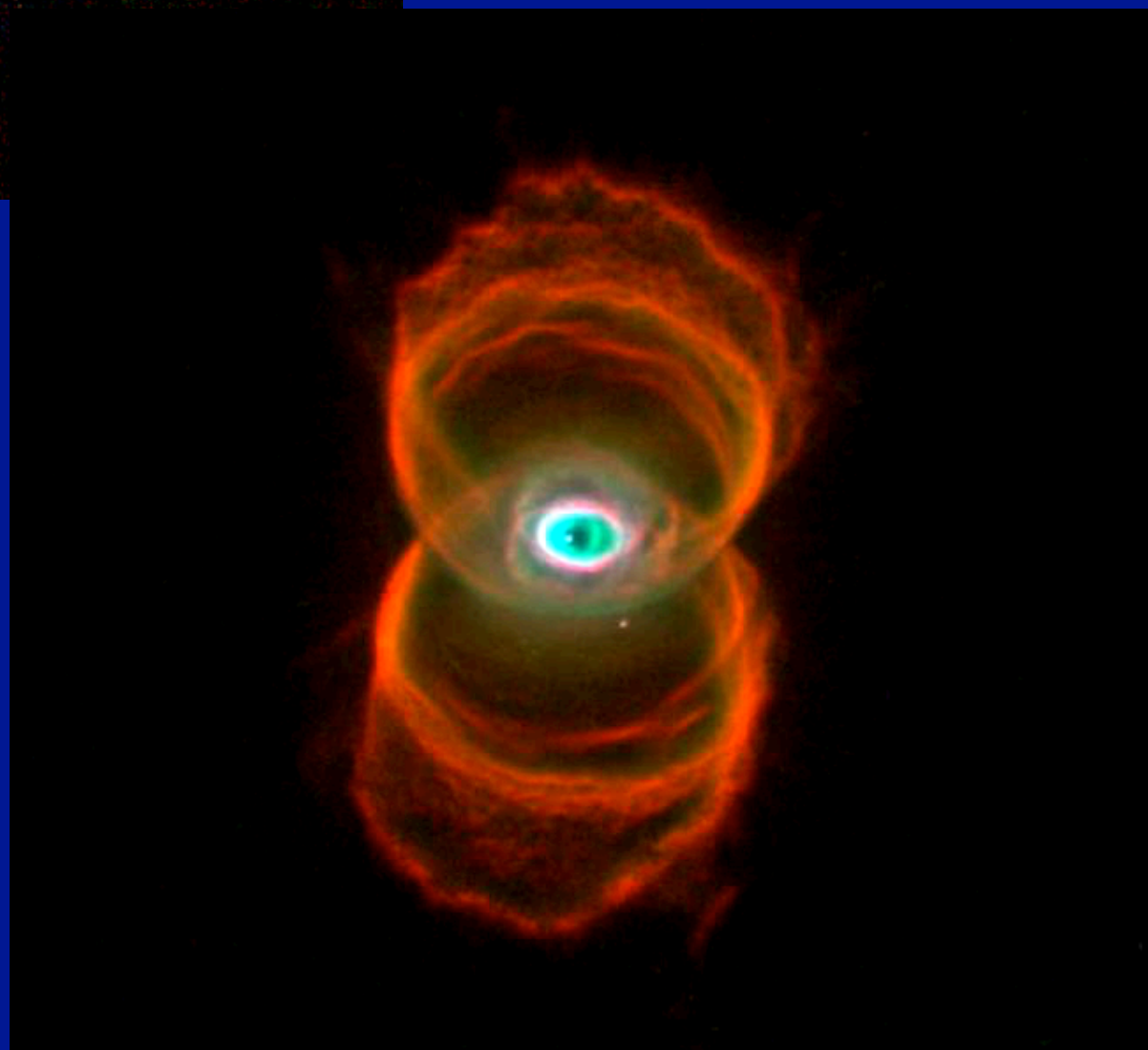
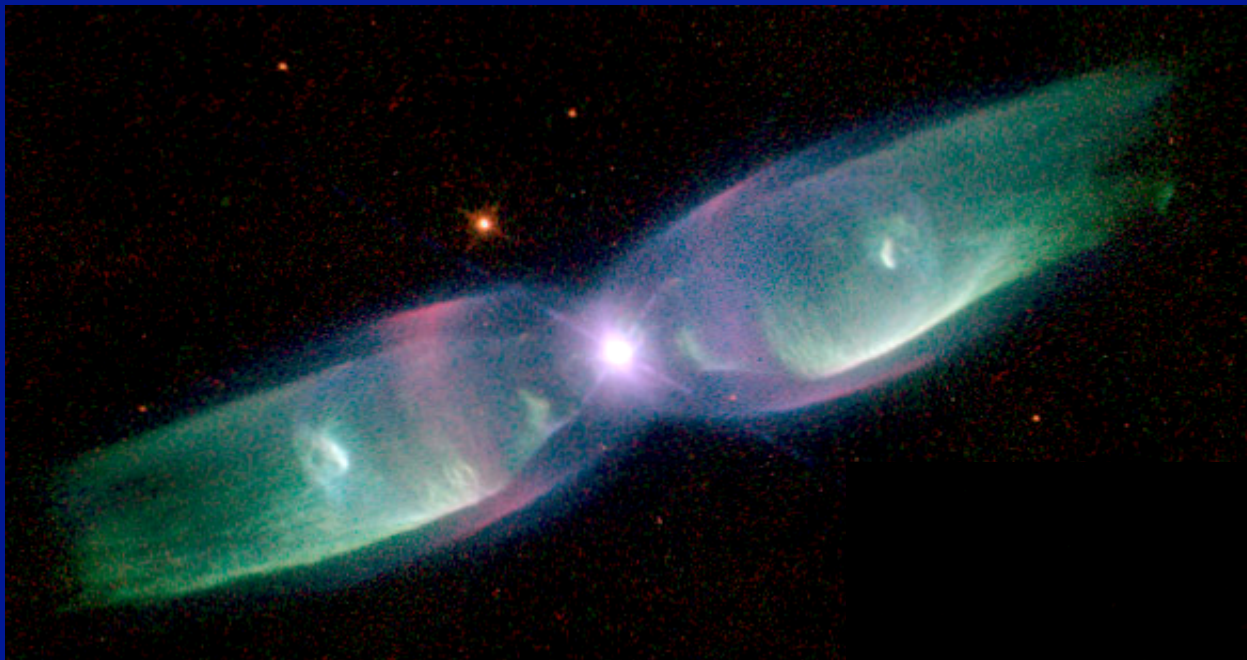
Is there life on Mars?

- A. Yes, and they once attacked us!
- B. Yes, but just primitive life
- C. Not now, but maybe in the past
- D. Not now or ever

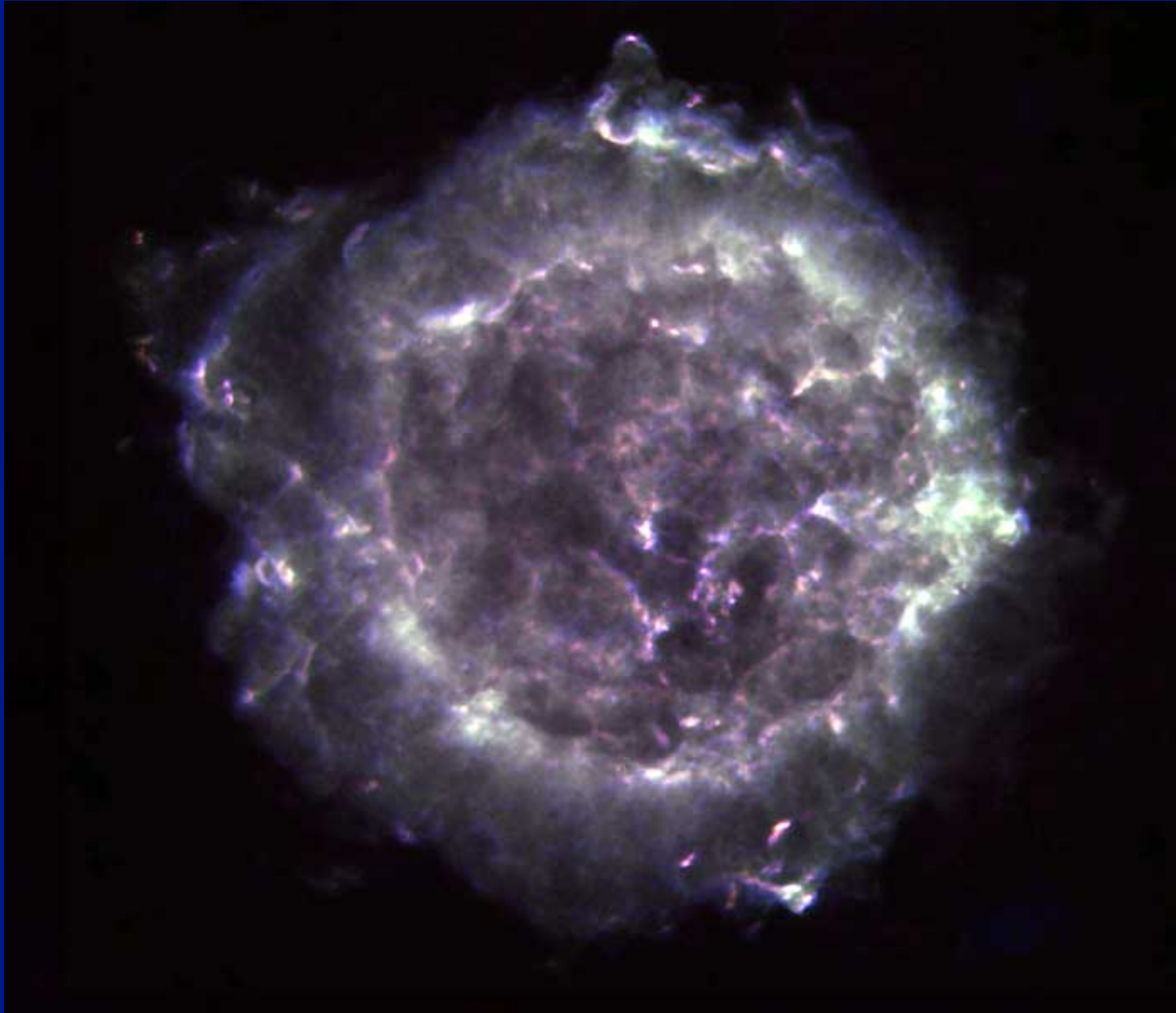








Cassiopeia A: Supernova Remnant



Example Supernova: 1998bw



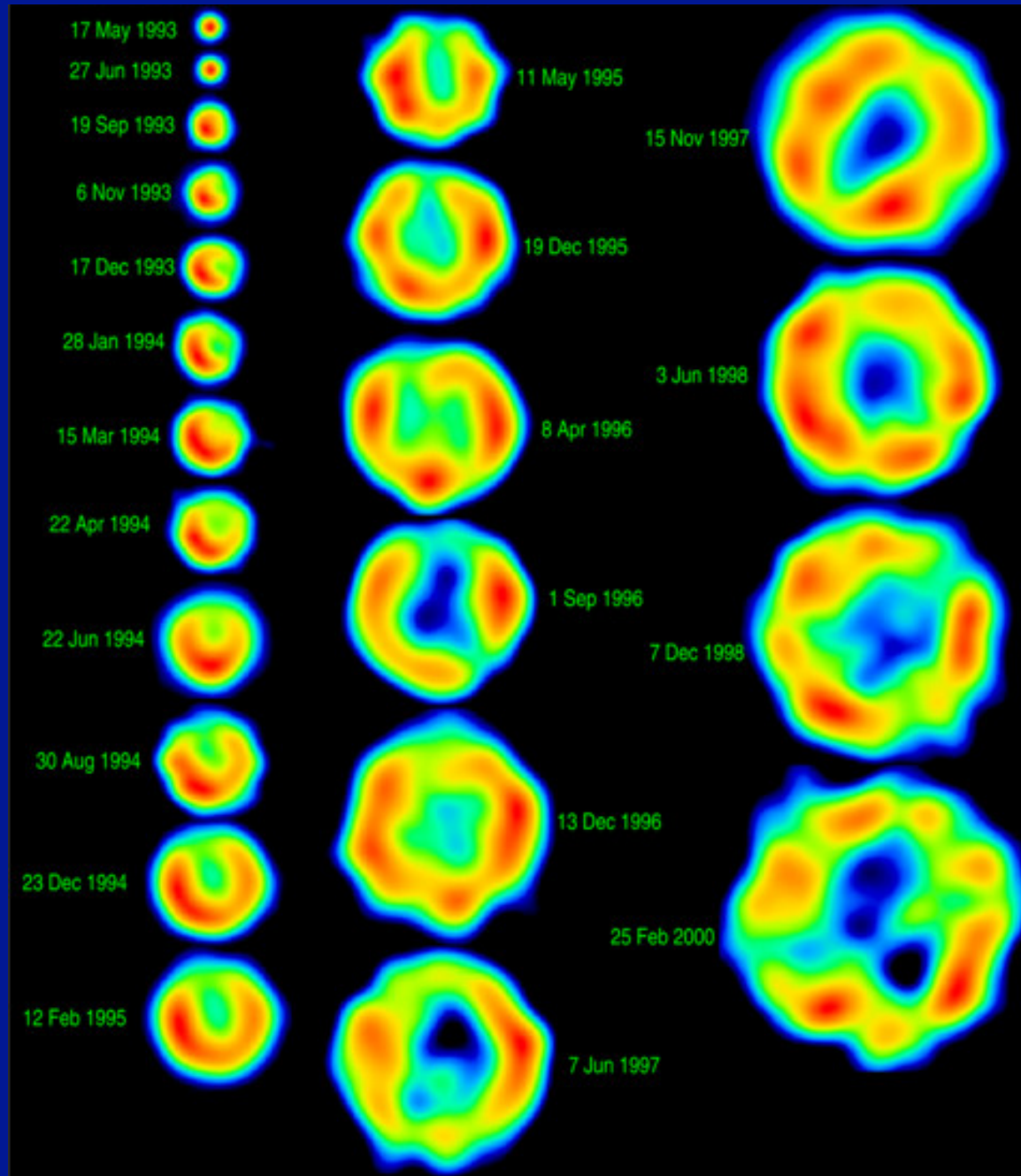
SN 1998bw in Spiral Galaxy ESO184-G82

ESO PR Photo 39a/98 (15 October 1998)

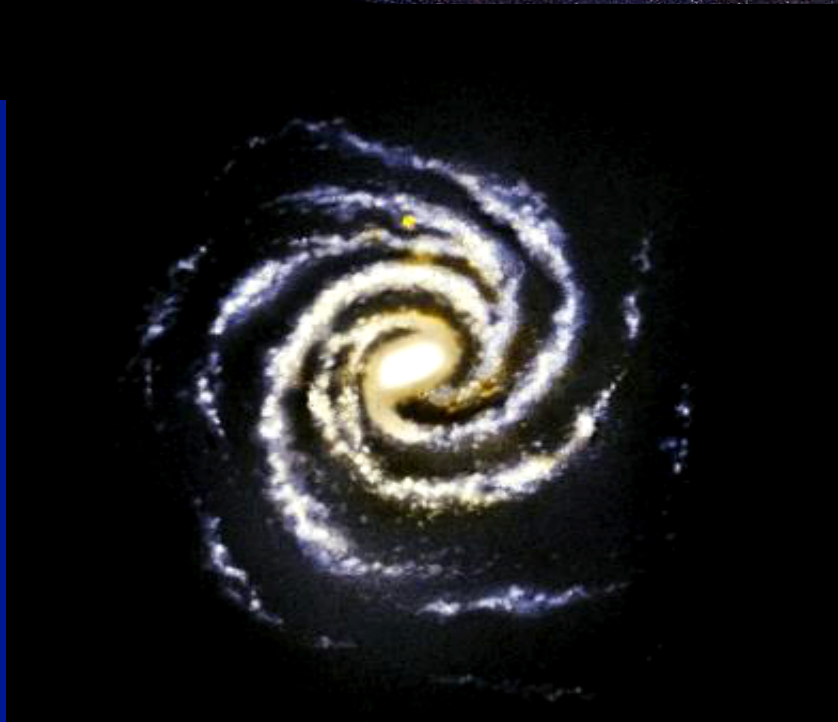
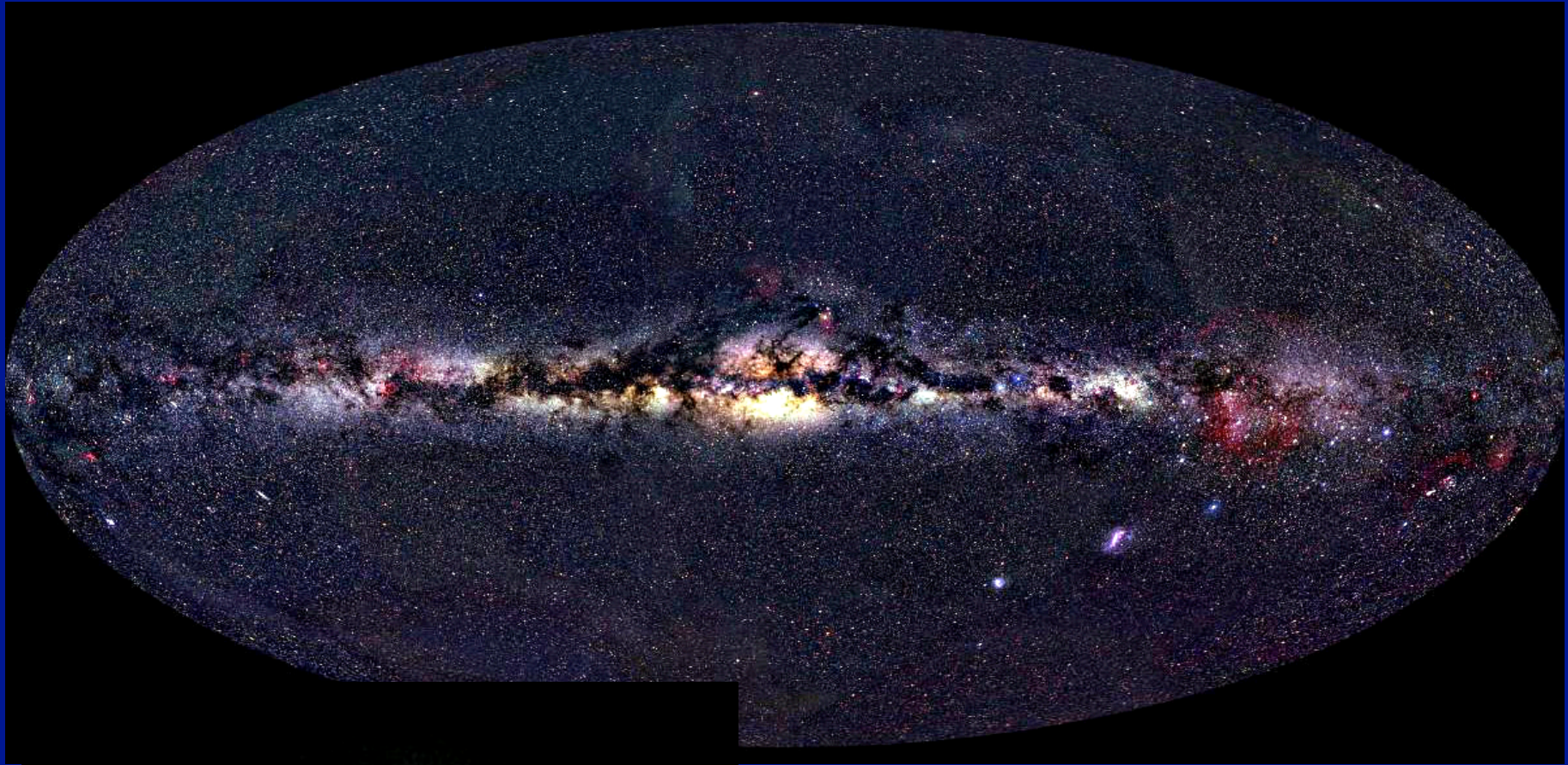
© European Southern Observatory



A Young Supernova

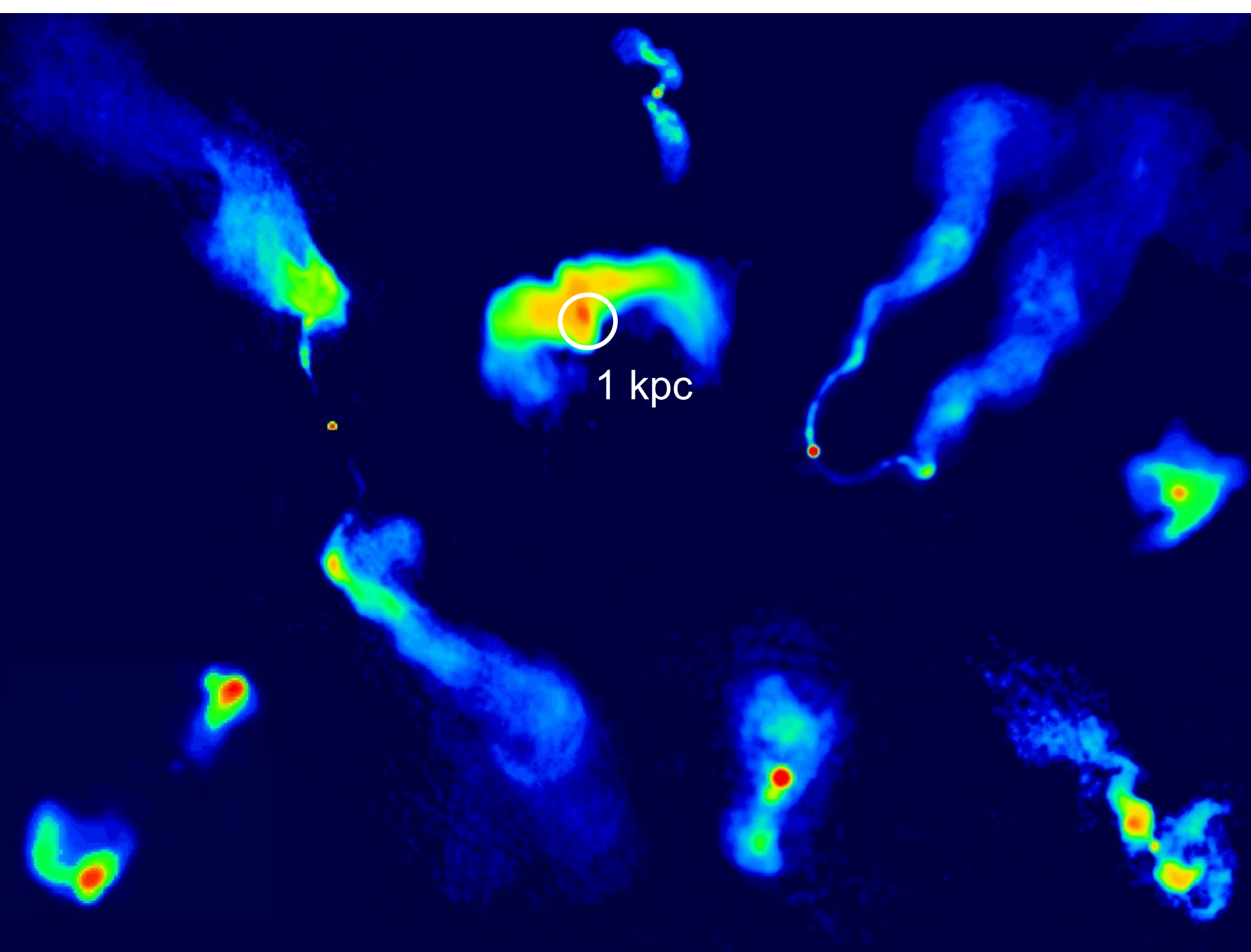


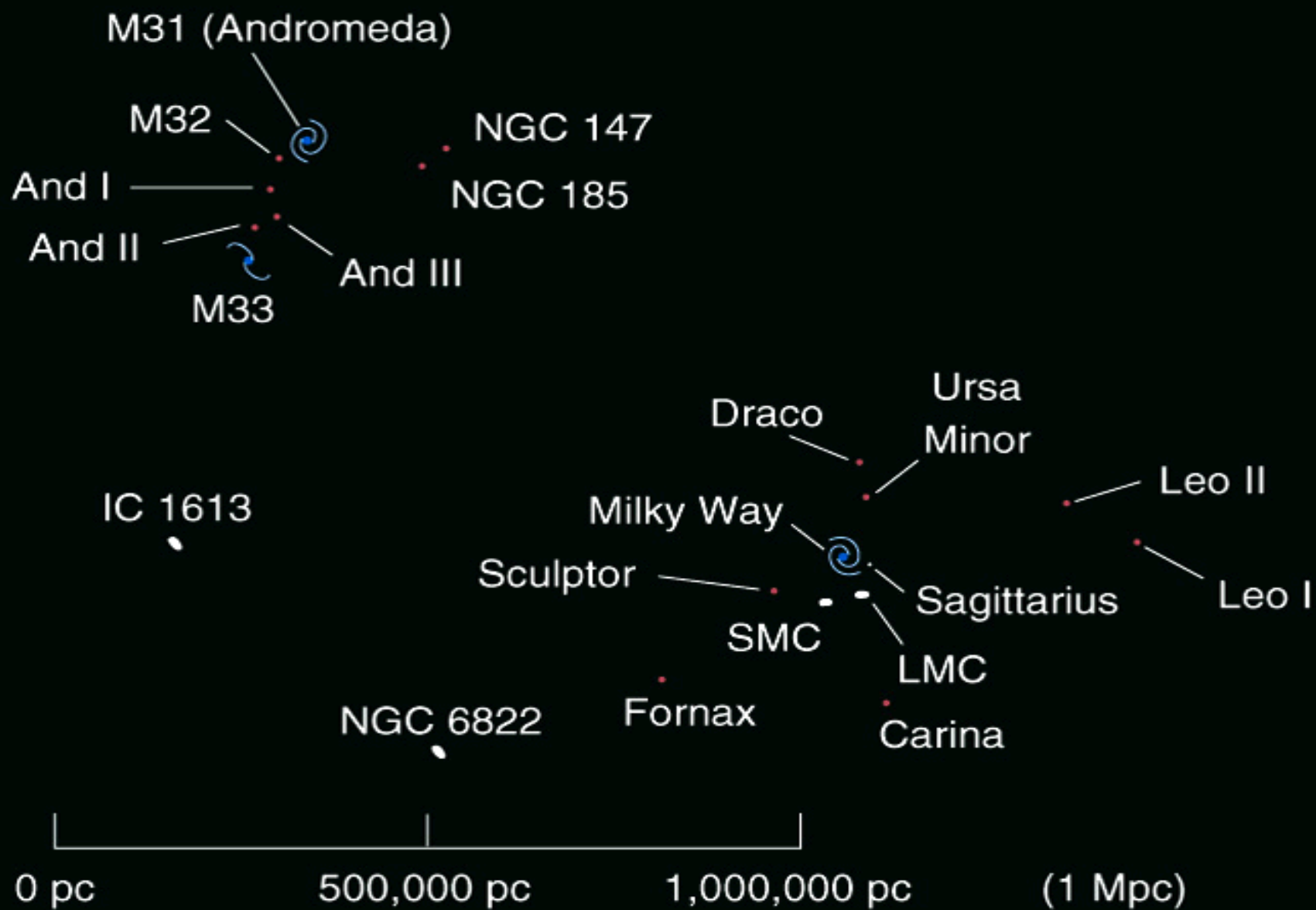
SN 1993J
Rupen et al.

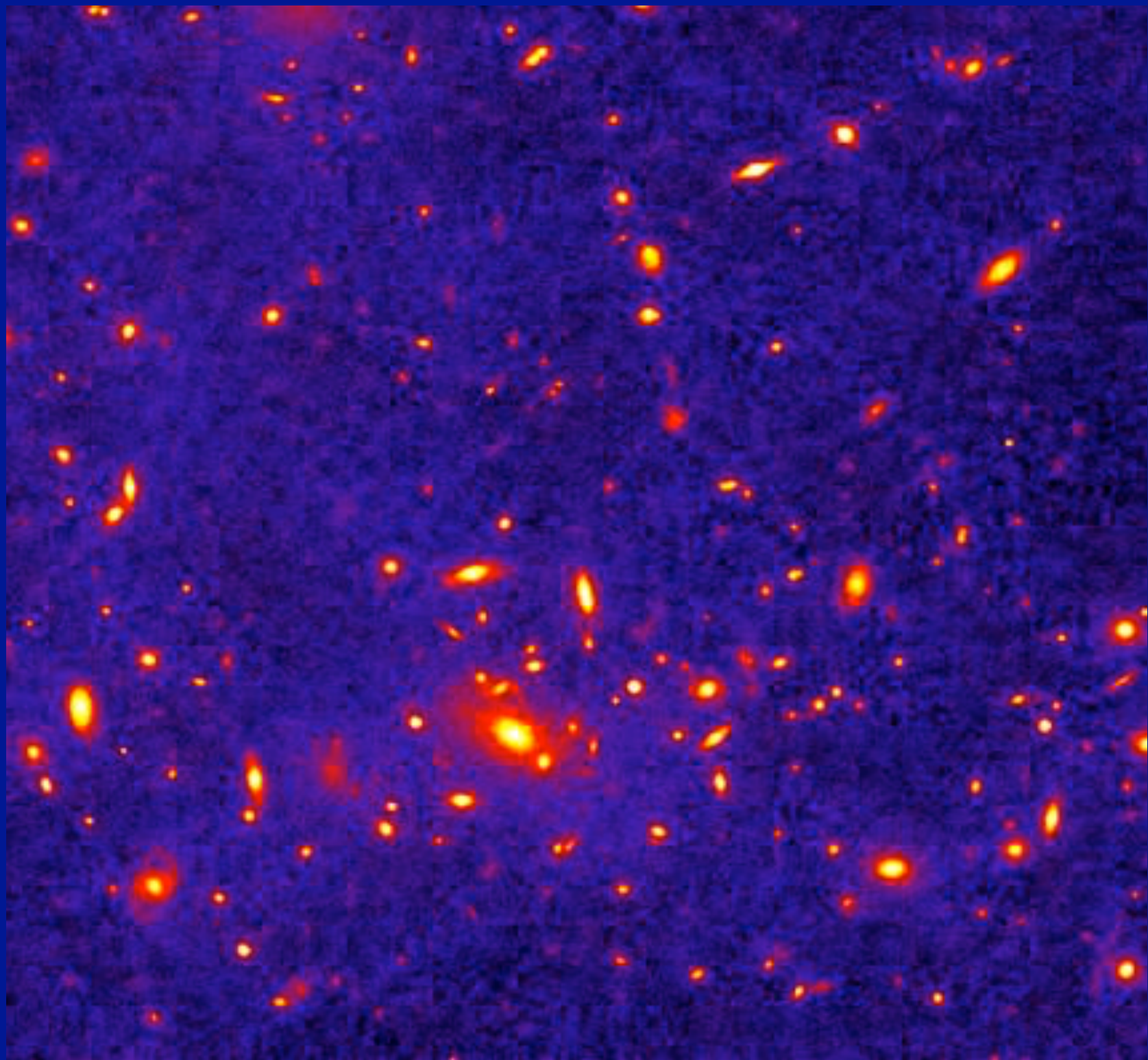


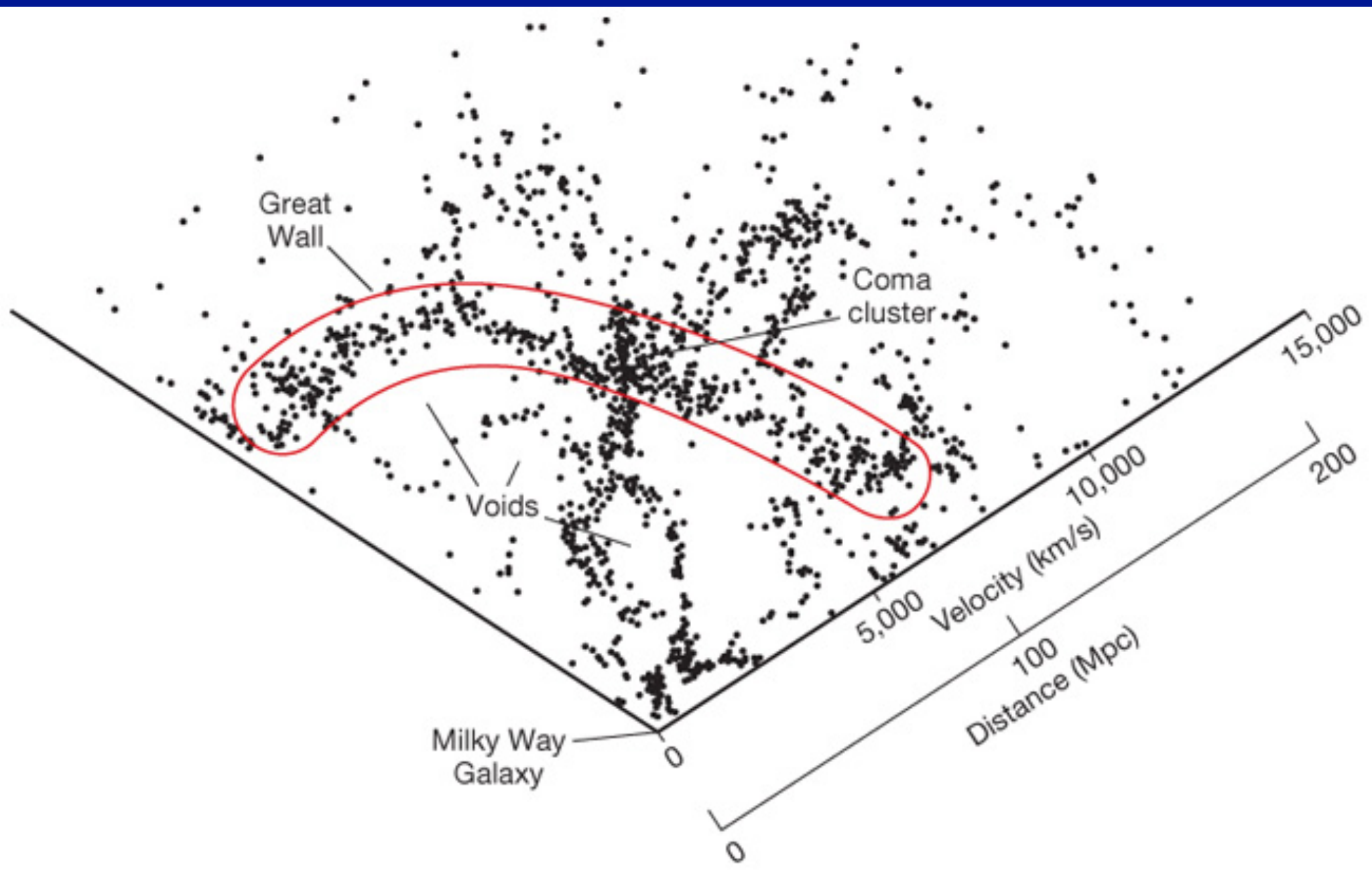












Cosmic Microwave Background

