VIII Studentska astronomska radionica
Departman za fiziku, Prirodno-matematički fakultet, Novi Sad

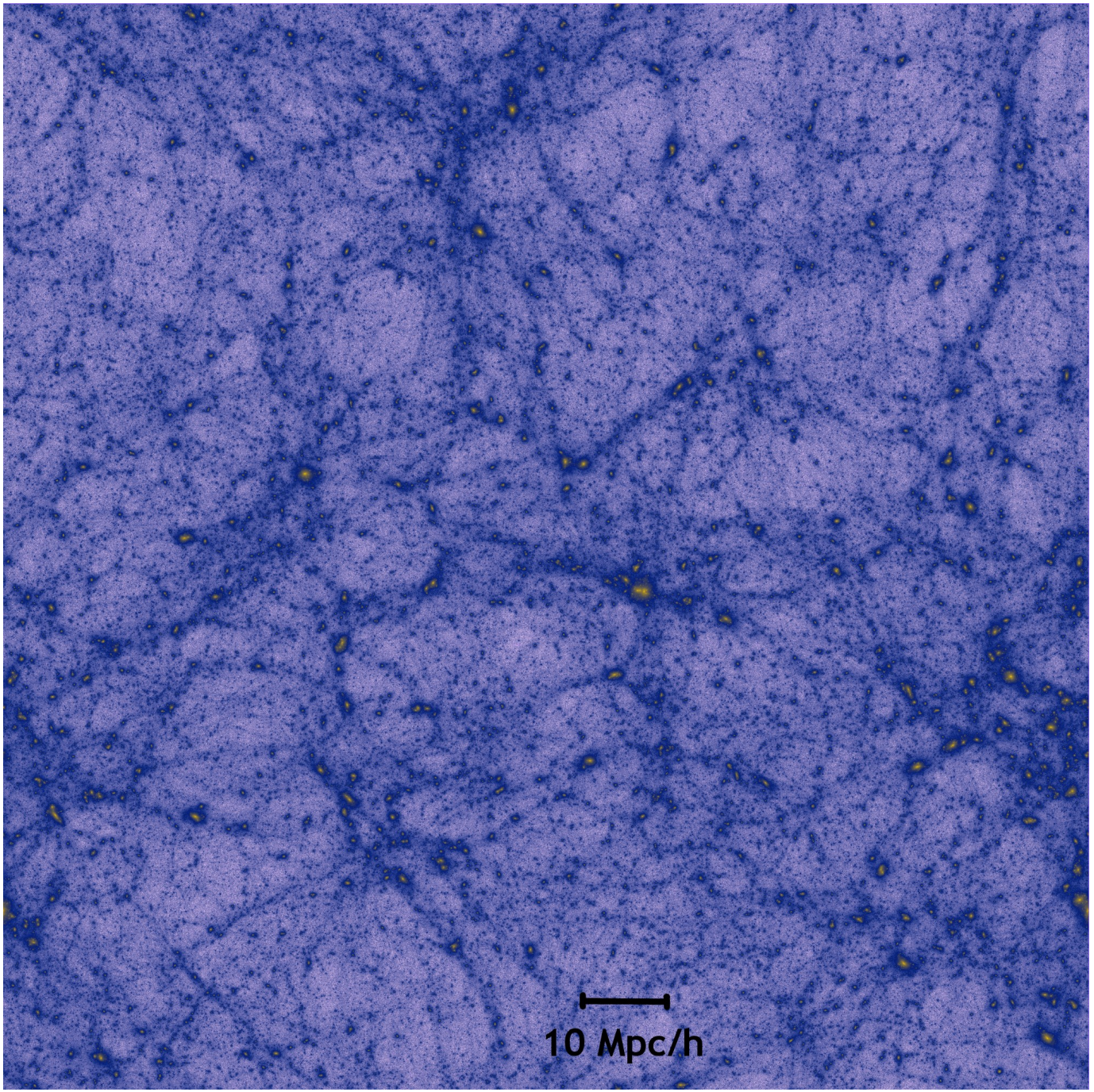
Novo u astrofizici: kako ostati u toku?

Nemanja Martinović

Astronomska opservatorija
Beograd

25. april 2015. godine

IGM



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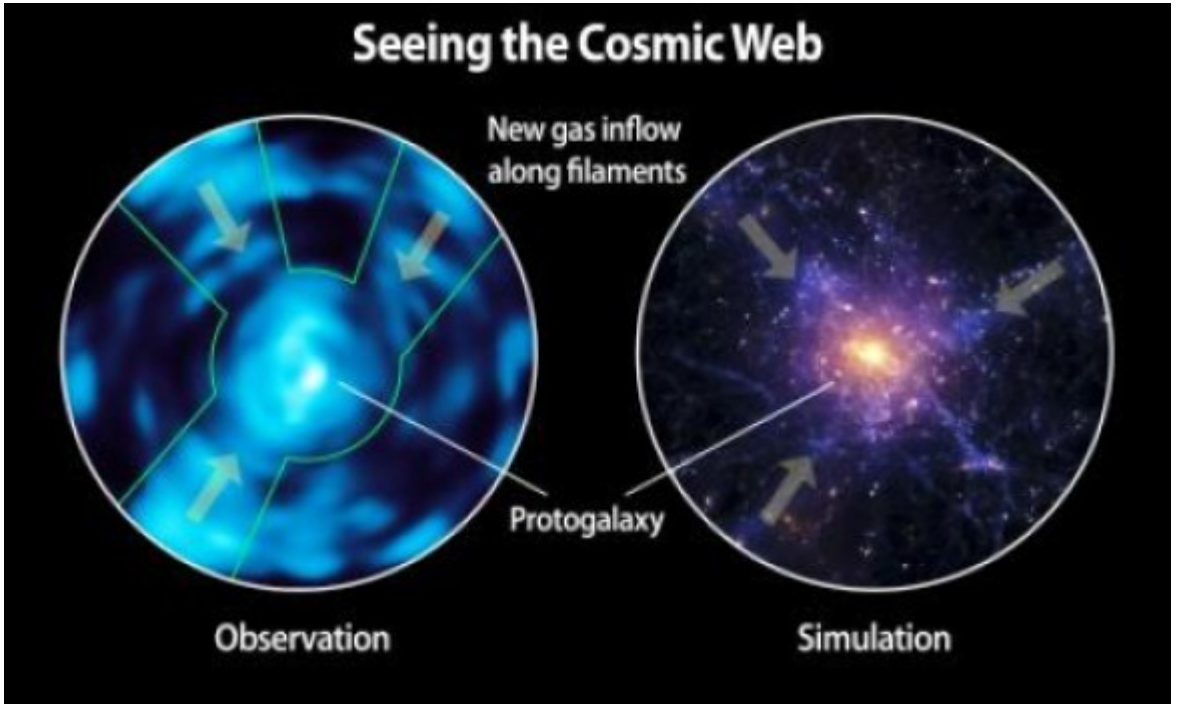
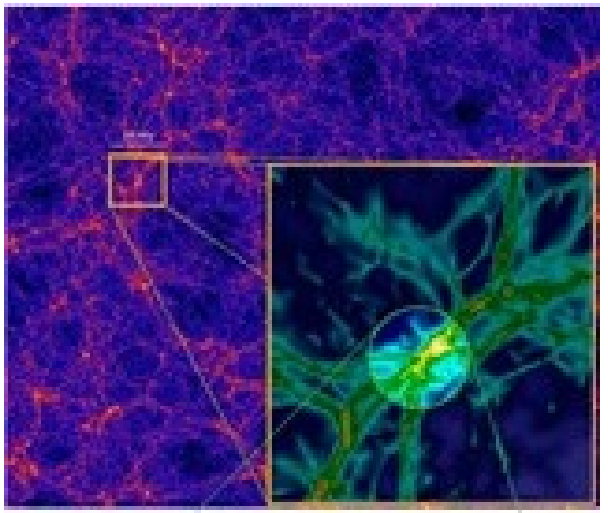
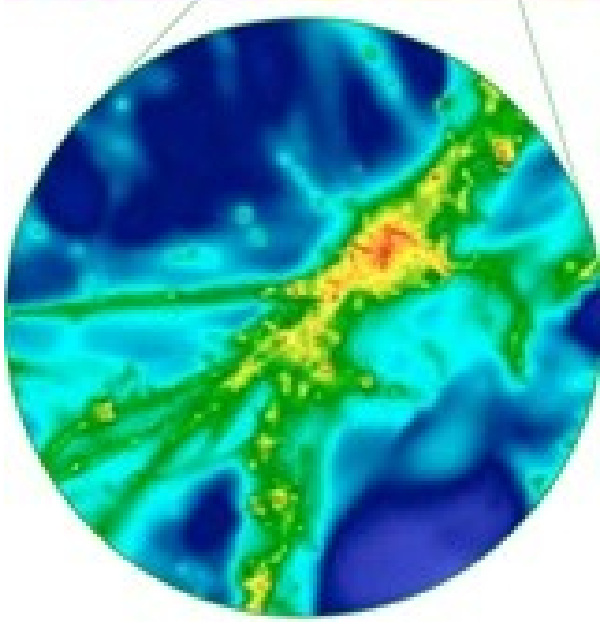
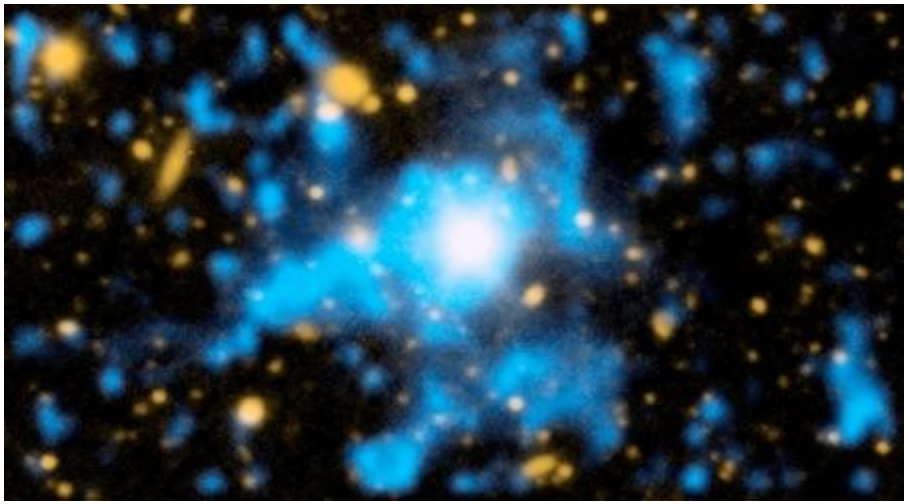

Seeing the Cosmic Web
New gas inflow
along filaments
Protogalaxy
Observation
Simulation



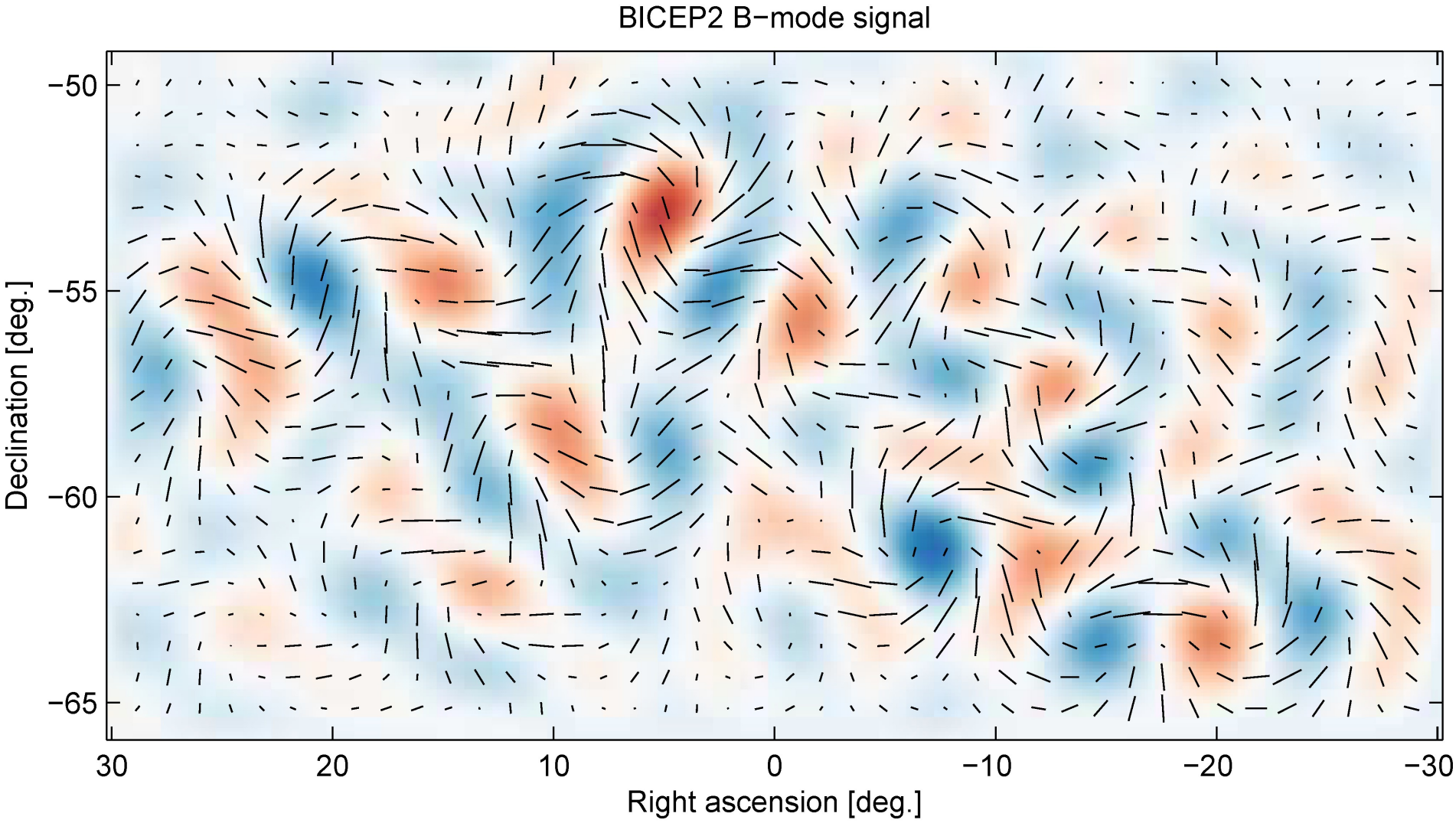




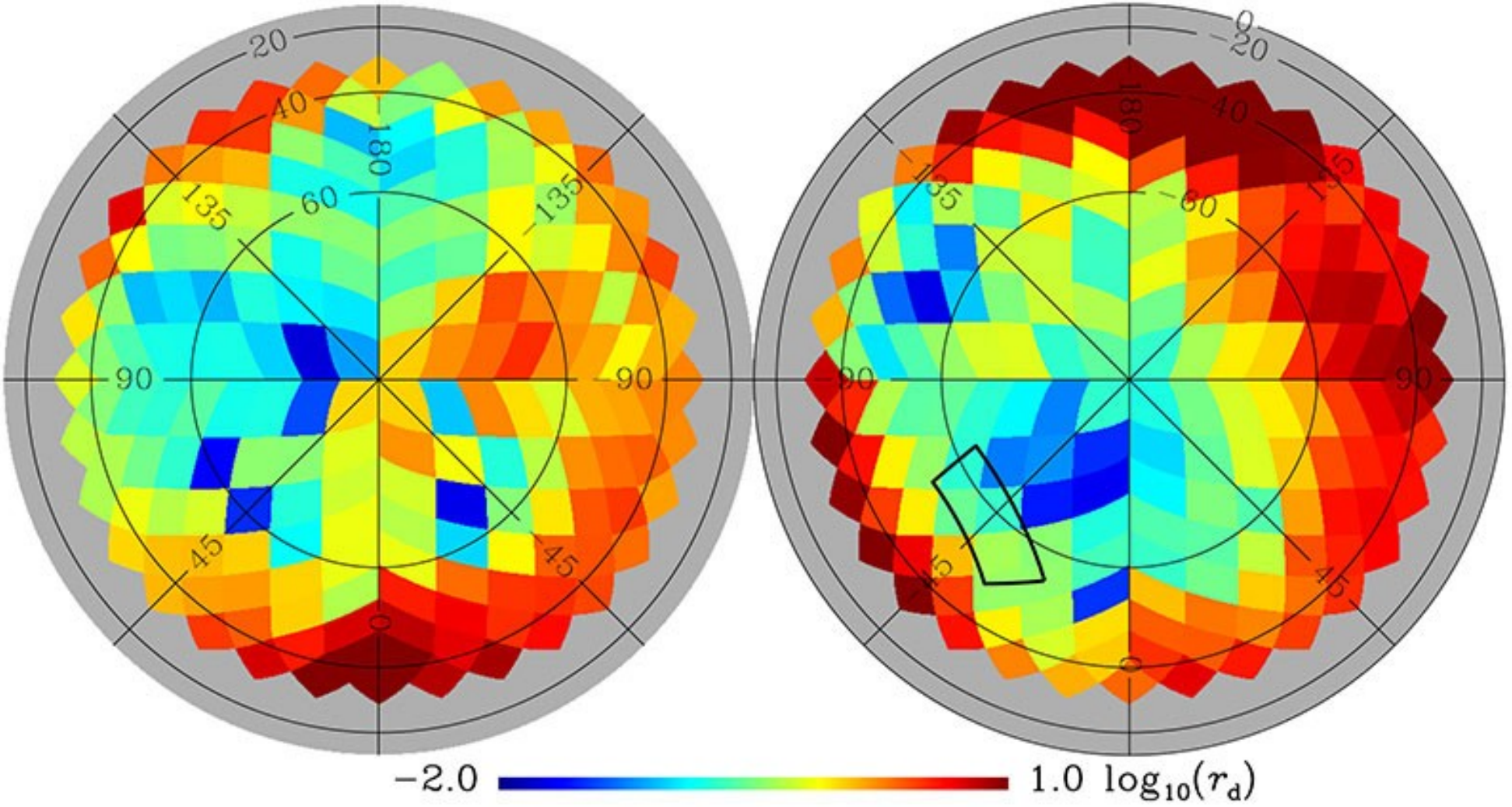
BICEP2

BICEP2

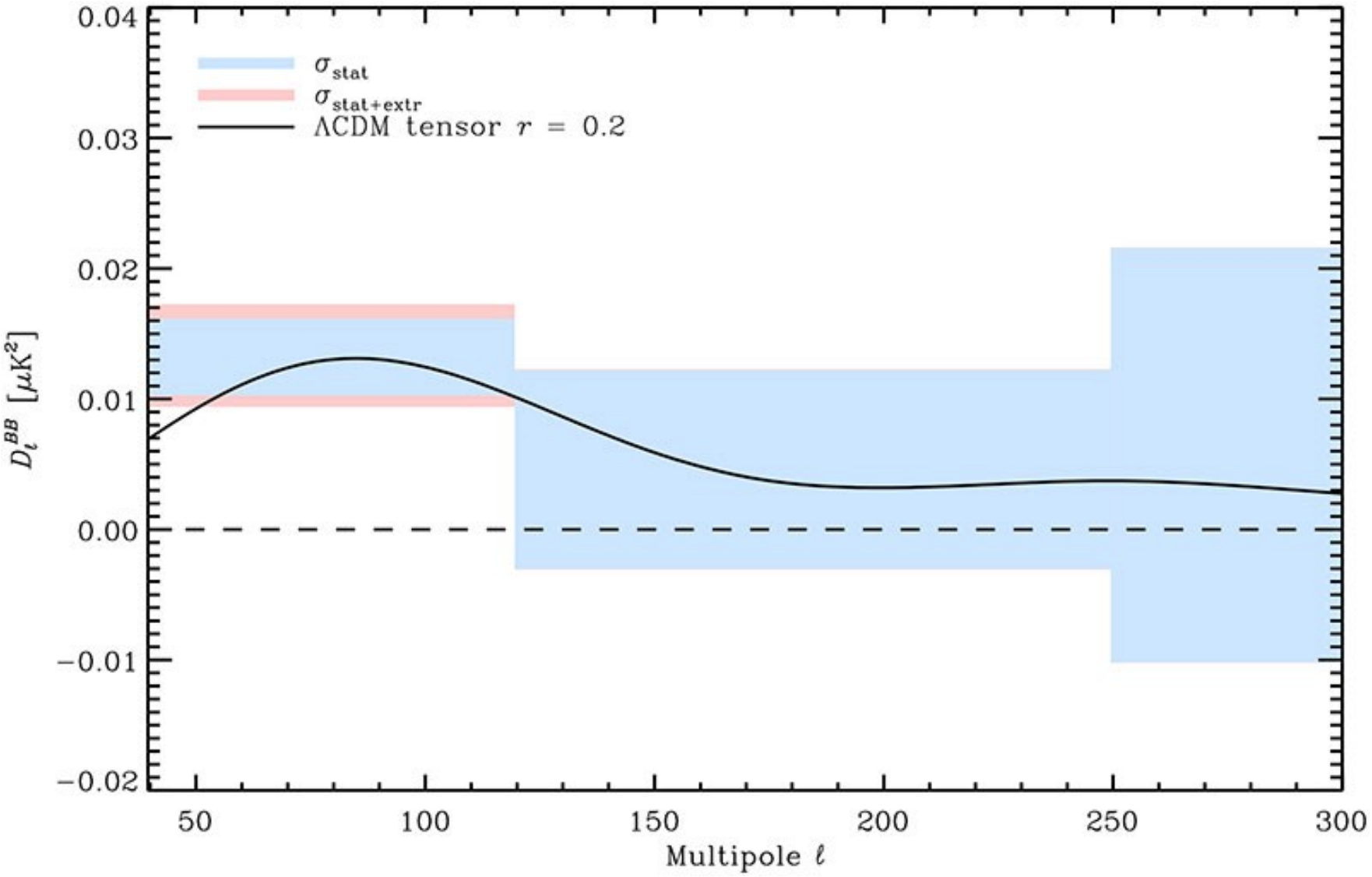
BICEP2


BICEP2 B−mode signal
−50
−55
−60
−65
Declination [deg.]
30
20
10
0
−10
−20
−30
Right ascension [deg.]

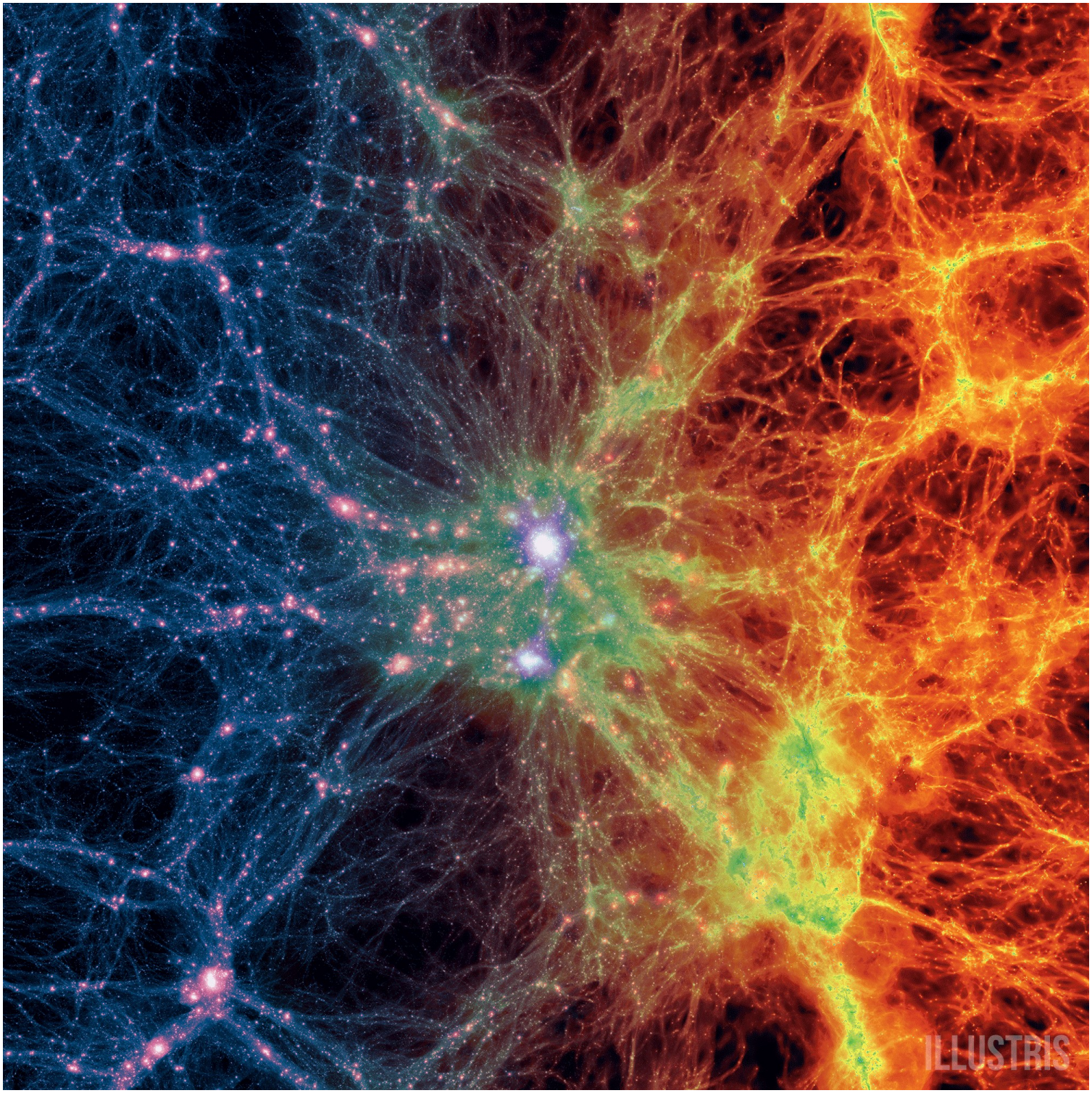
BICEP2 - Aftermath

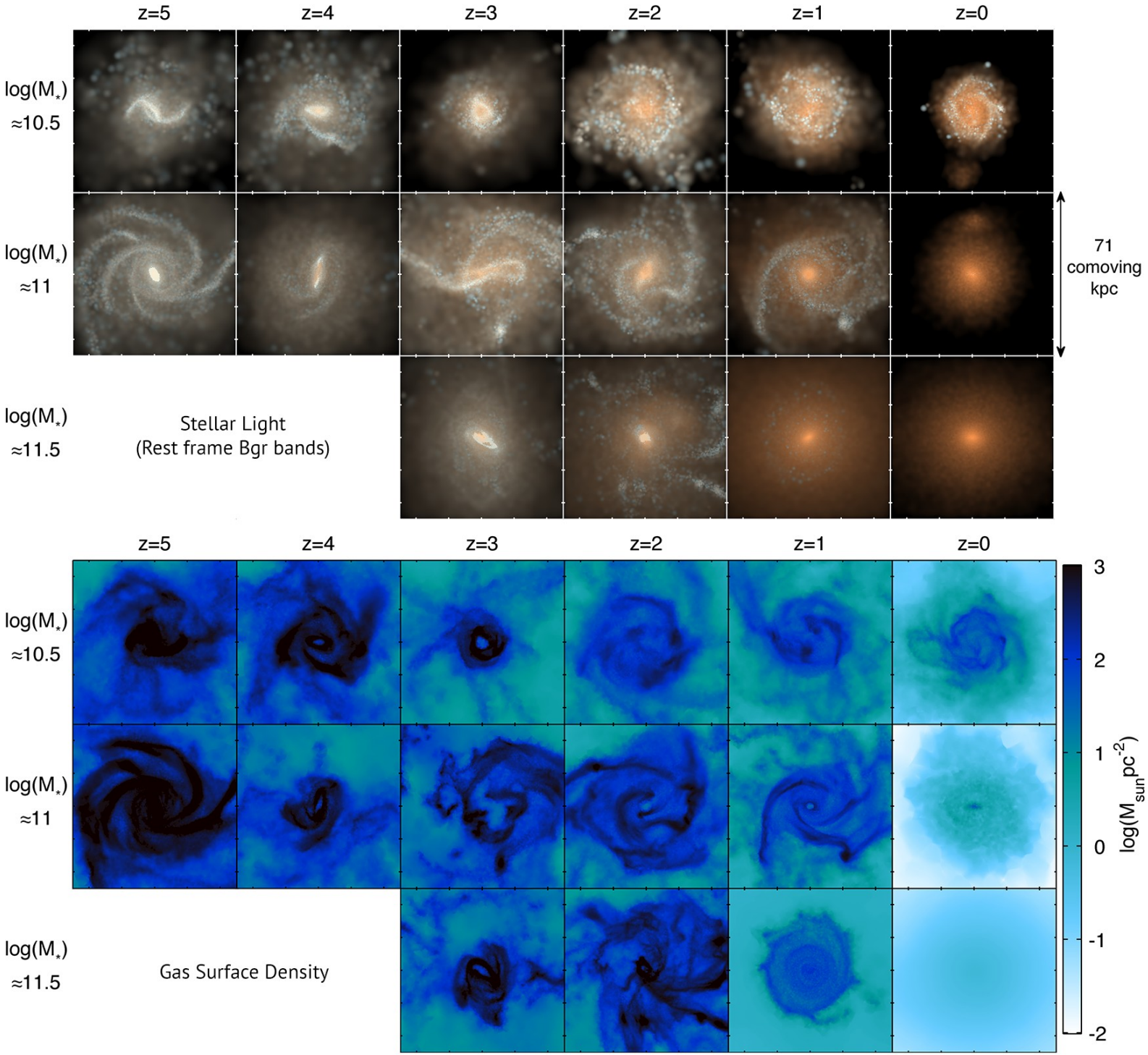


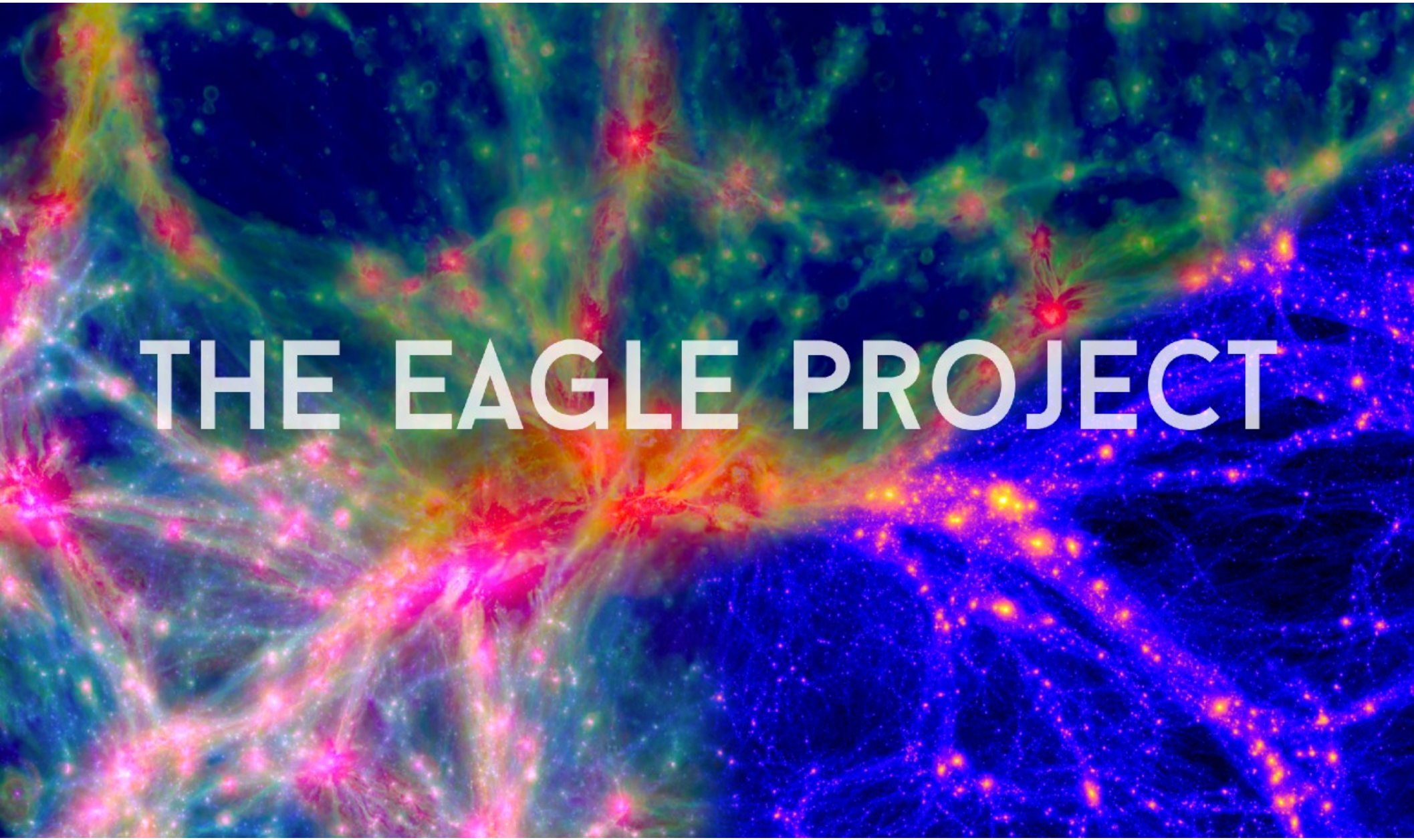
BICEP2 - Aftermath

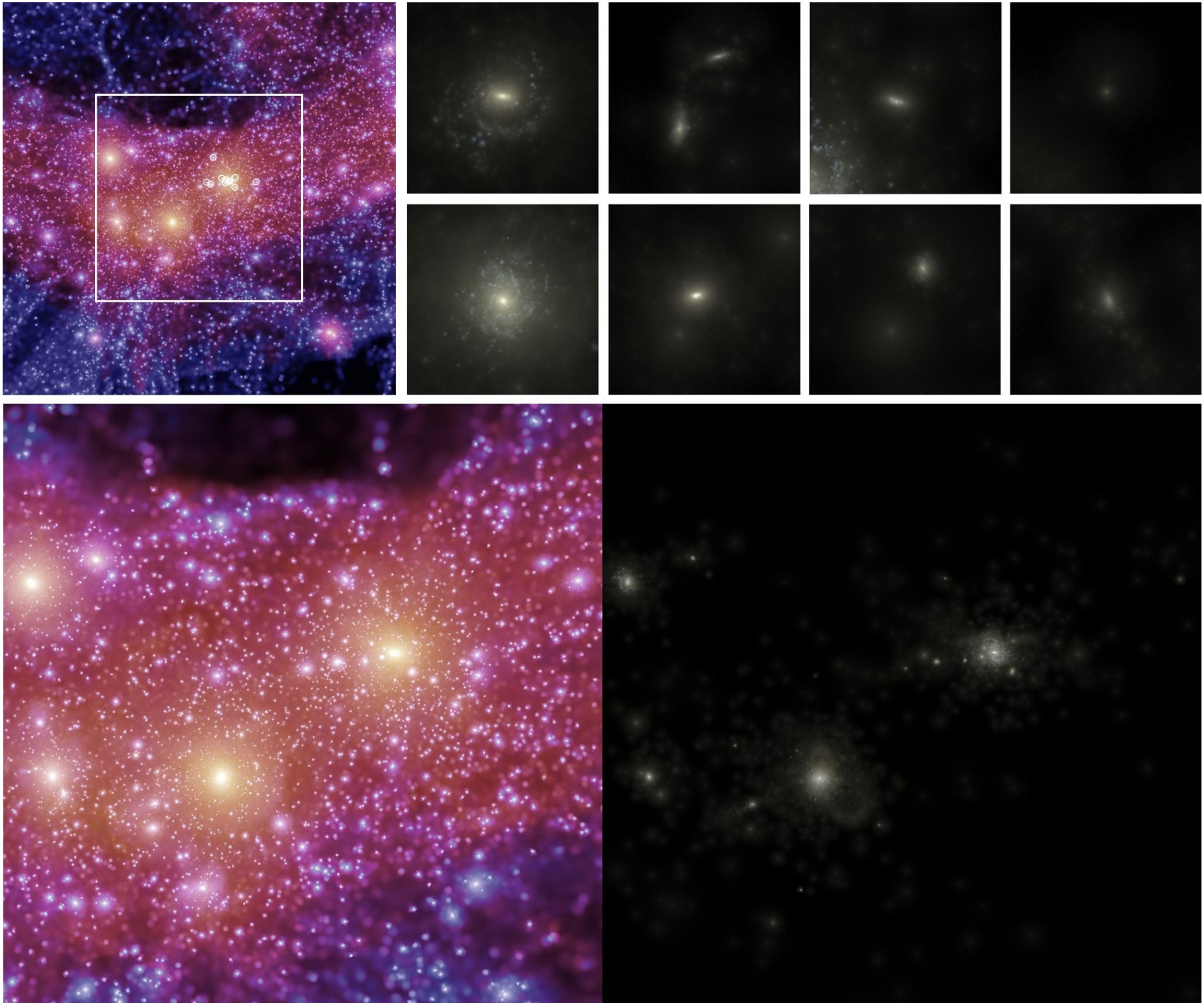


Illustris

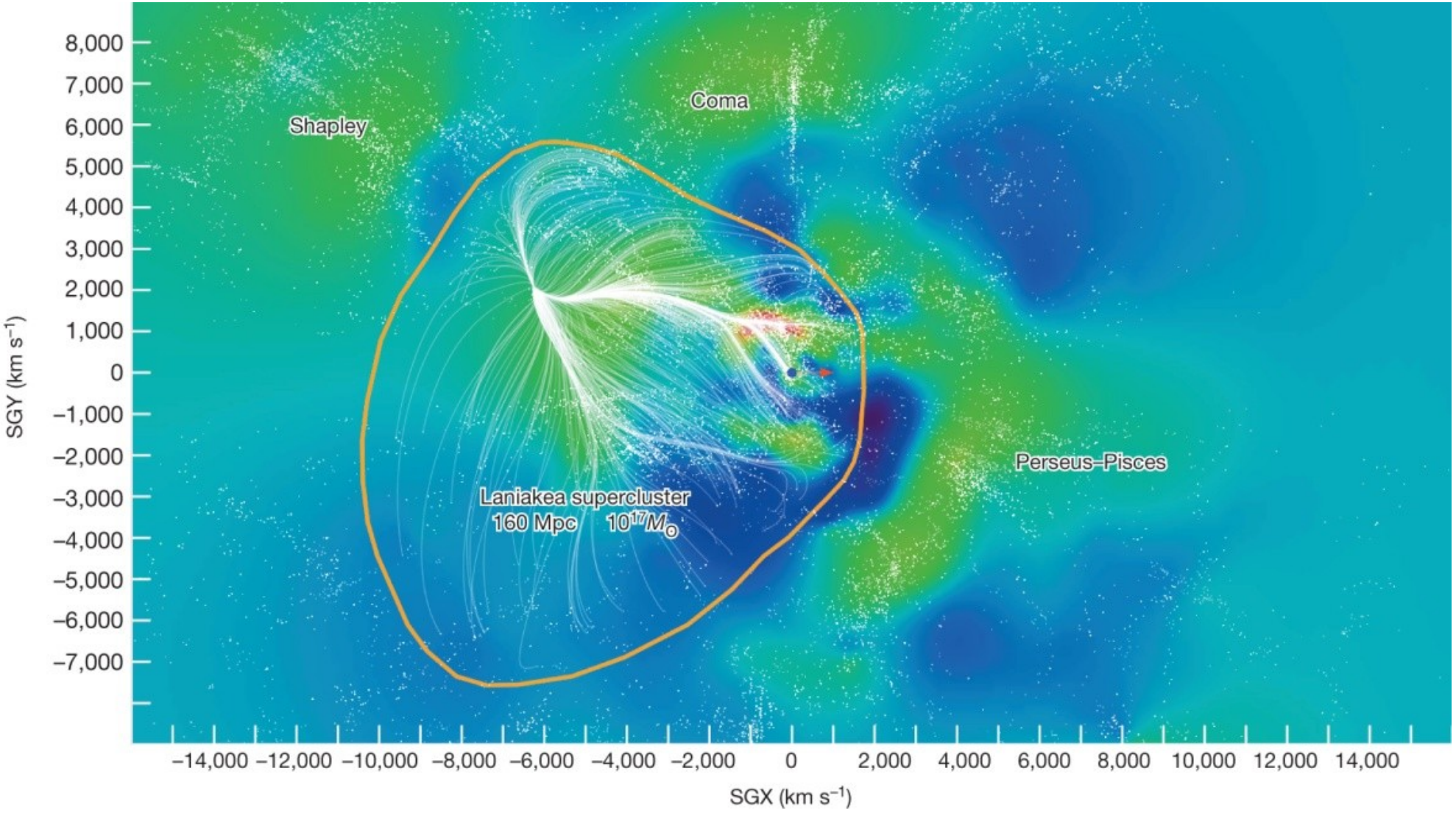



z=5
z=4
z=3
z=2
z=1
z=0
log(M*) ≈10.5
log(M*) ≈11
log(M*) ≈11.5
Stellar Light
(Rest frame Bgr bands)
71 comoving kpc
z=5
z=4
z=3
z=2
z=1
z=0
log(M*) ≈10.5
log(M*) ≈11
log(M*) ≈11.5
Gas Surface Density
3
2
1
0
-1
-2
log(Msun pc-2)


THE EAGLE PROJECT

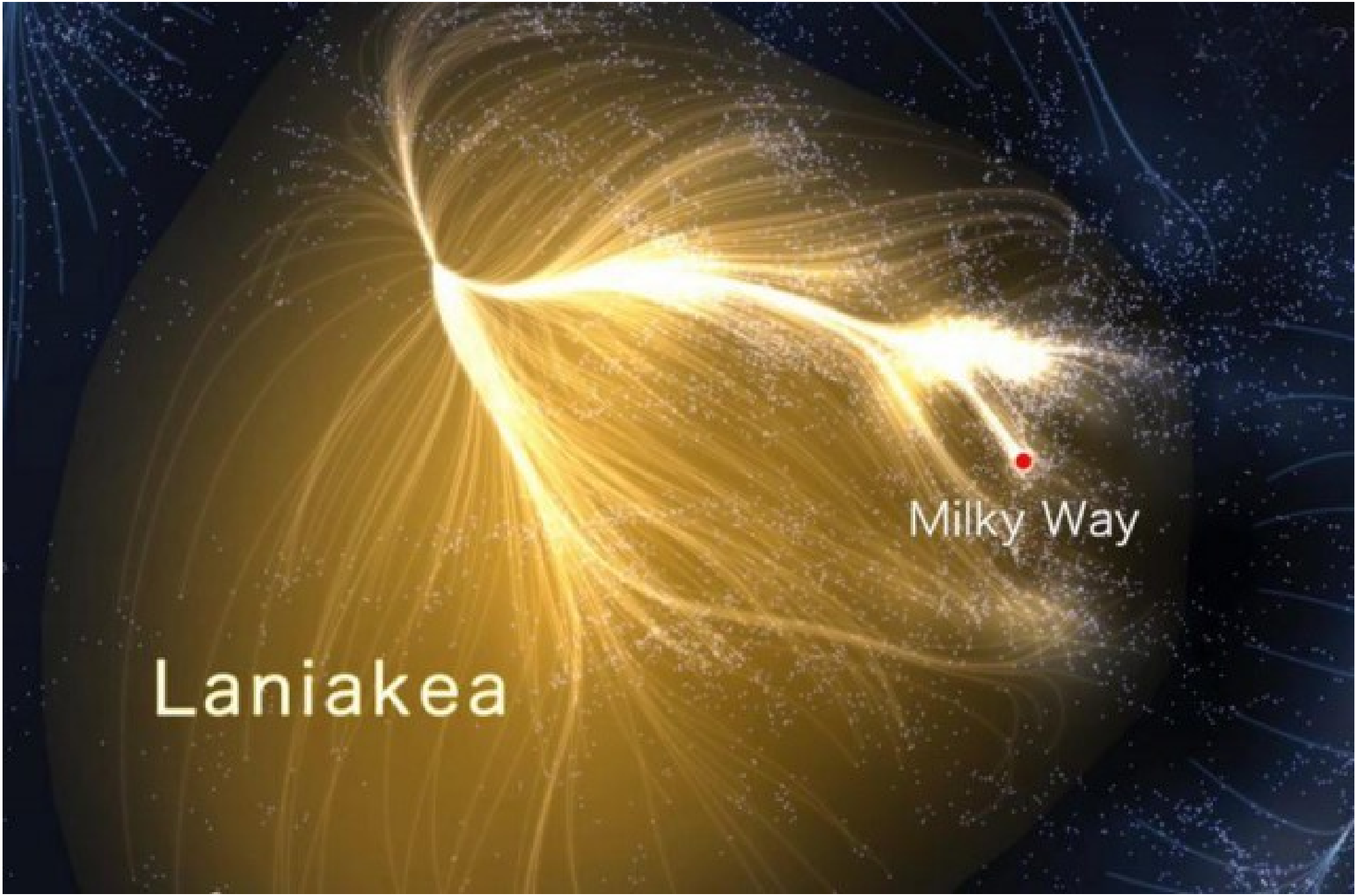


Laniakea

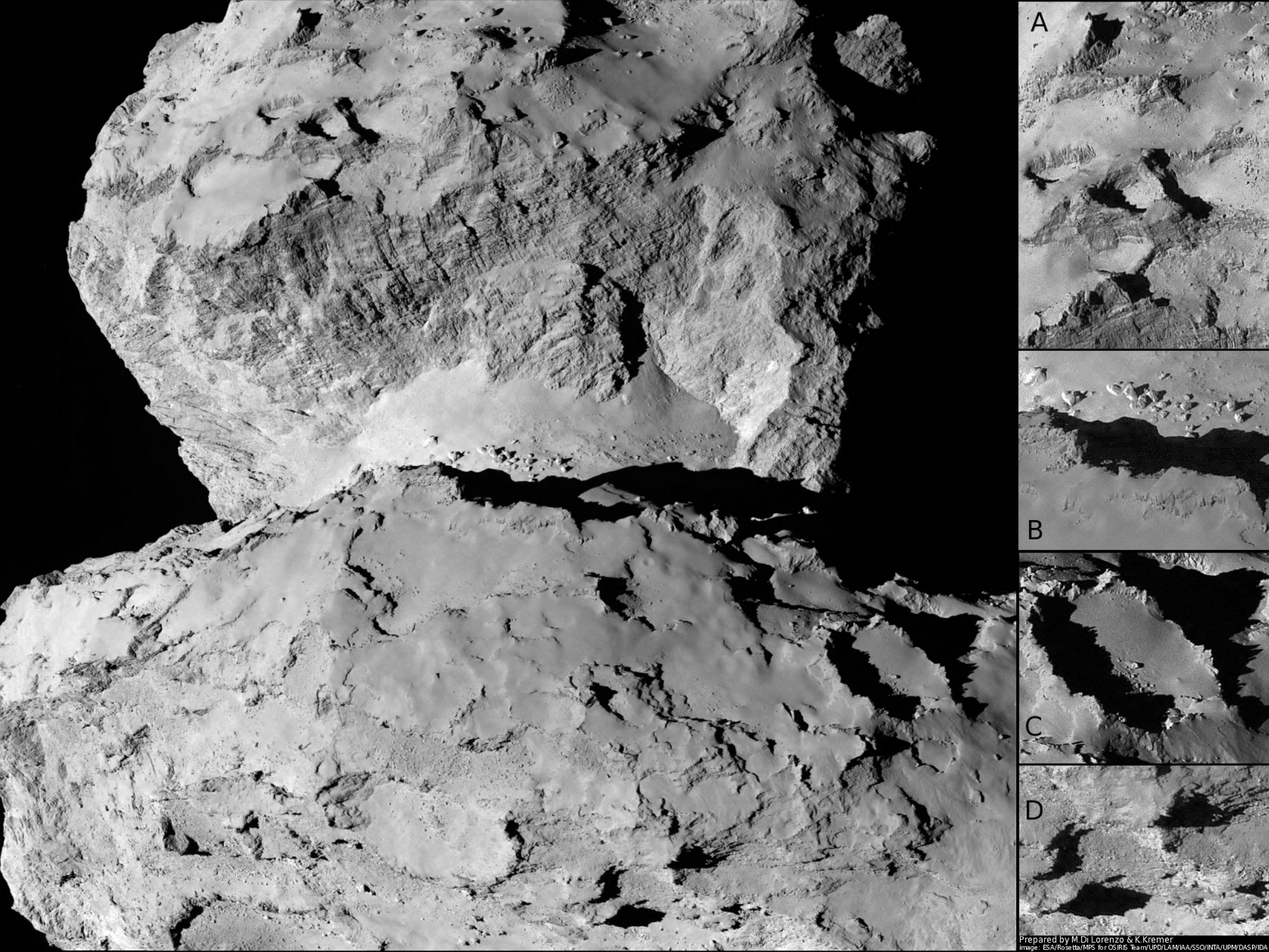


RB Tully *et al. Nature* **513** , 71-73 (2014) doi:10.1038/nature13674

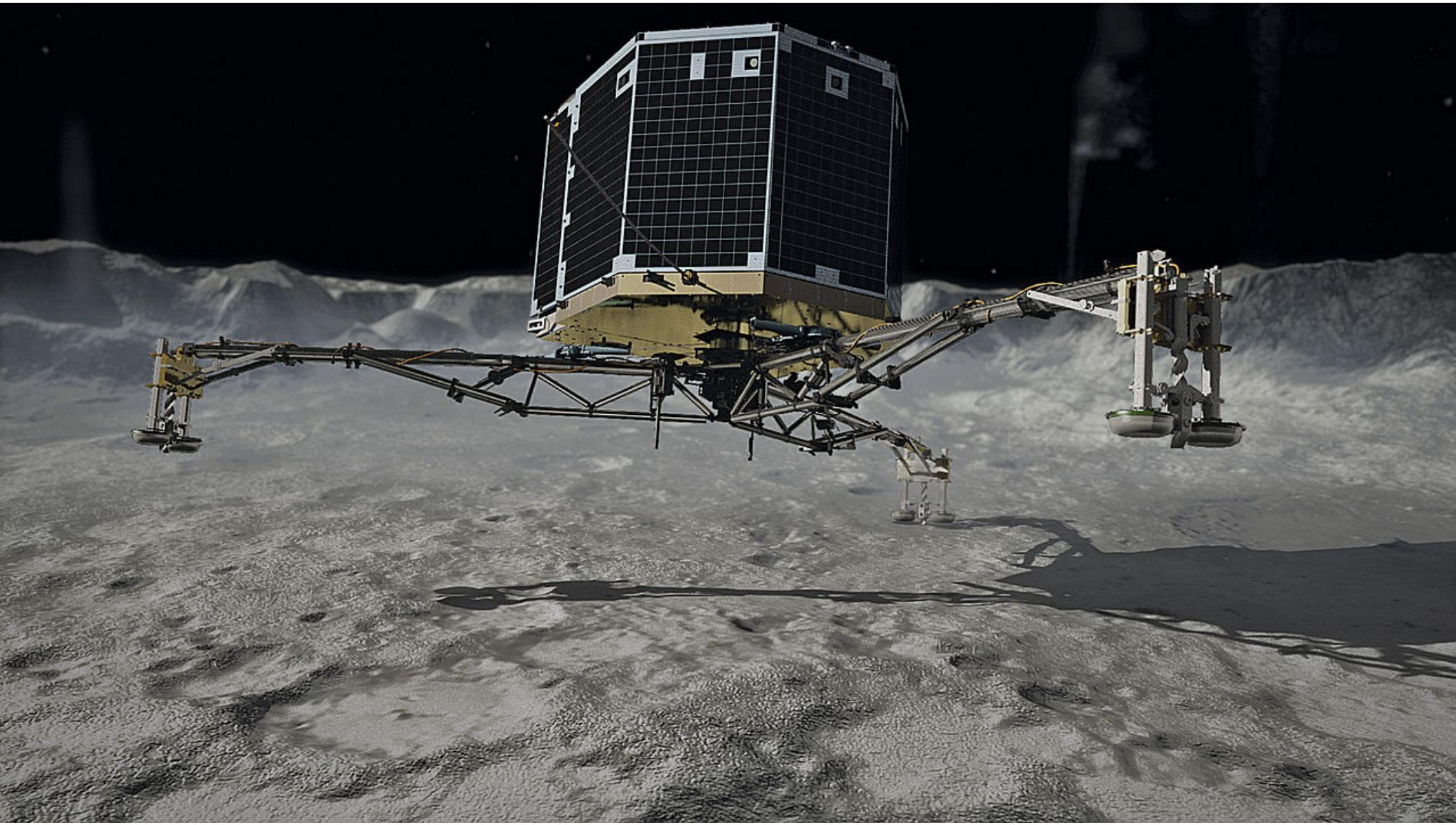
nature

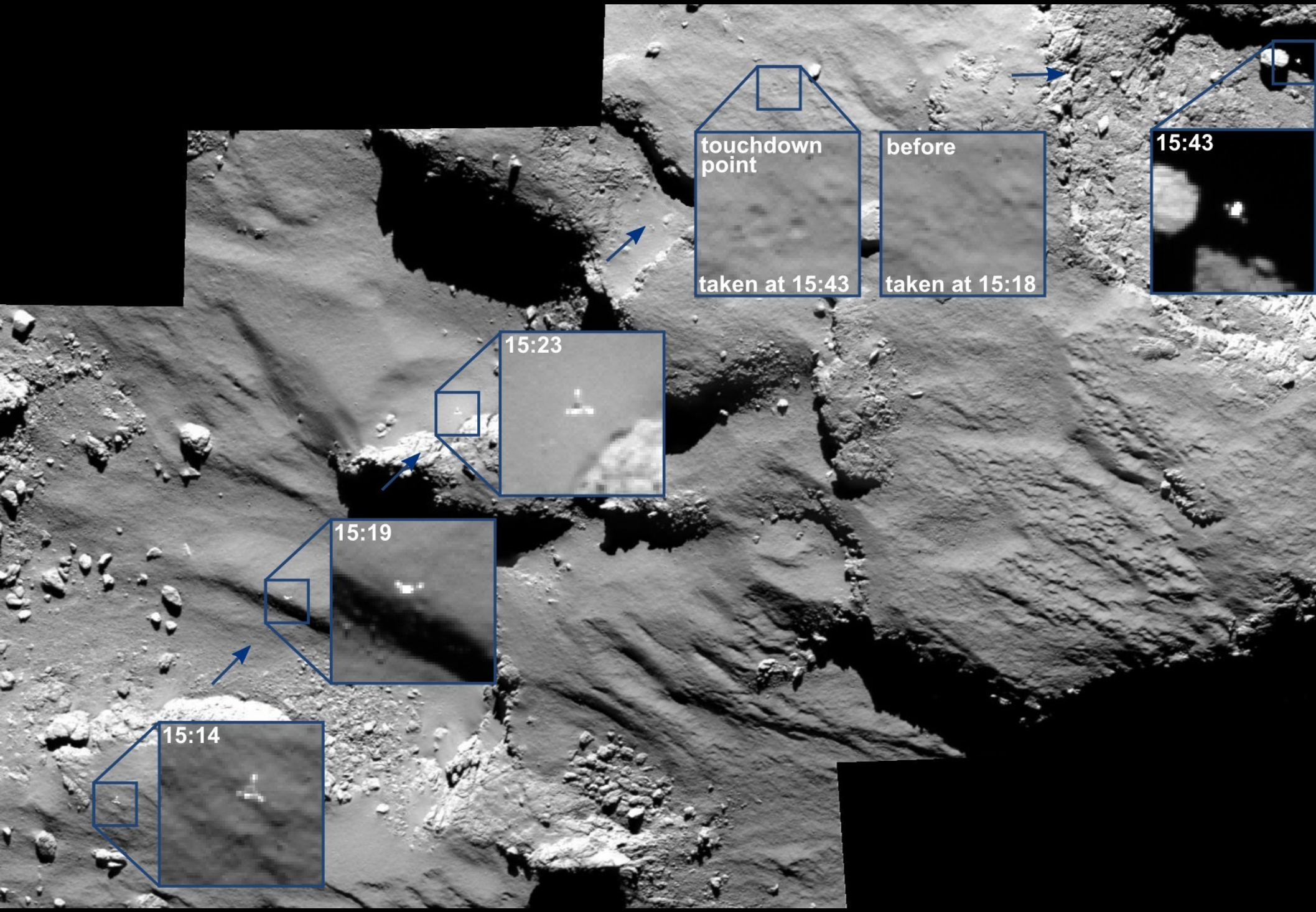

Milky Way
Laniakea

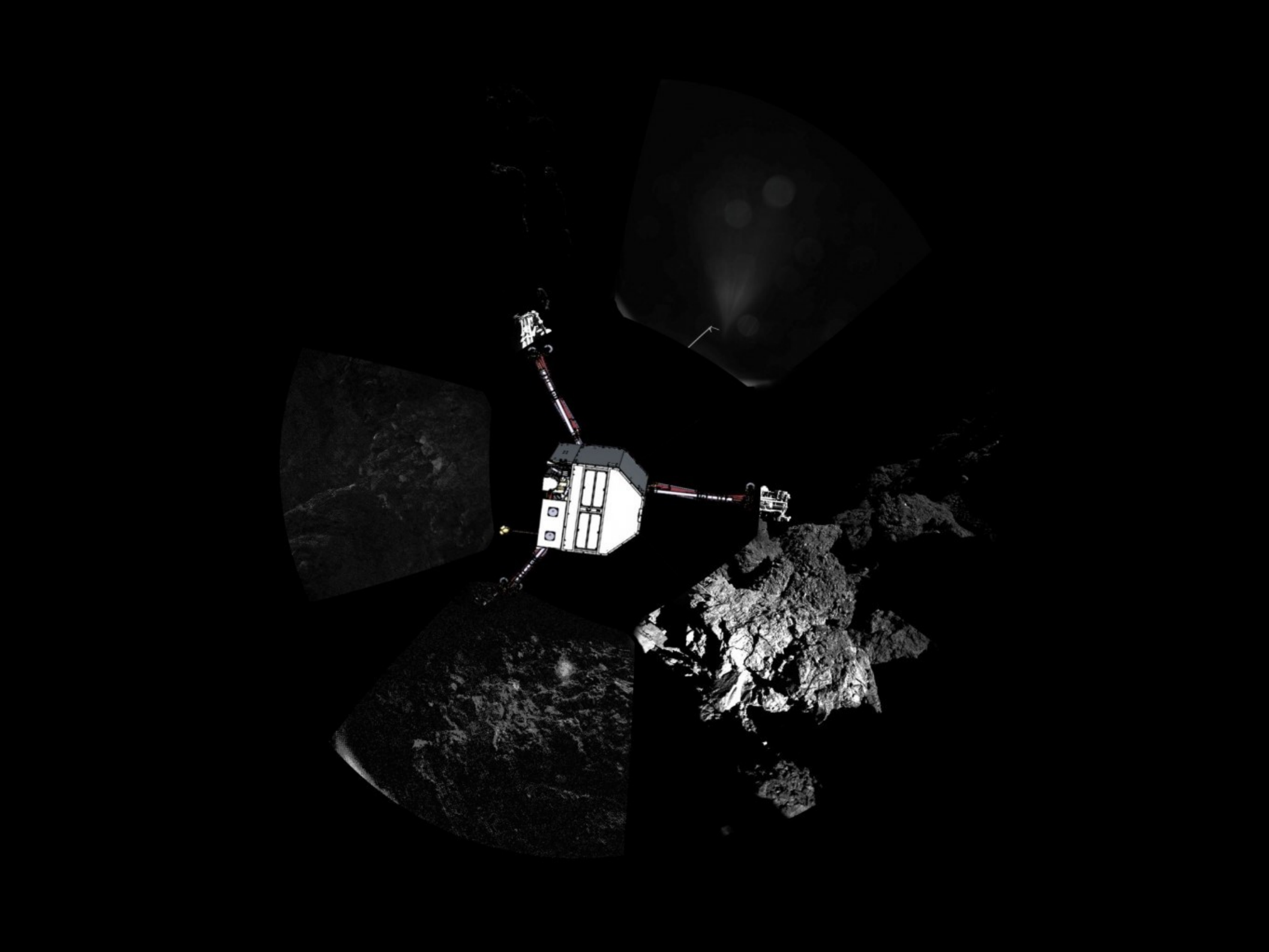
Rosetta - Philae


A
B
C
D
Prepared by M.Di Lorenzo & K.Kremer
image: ESA/Rosetta/MPS for OSIRIS Team/UPD/LAM/IAA/SSO/INTA/UPM/DASP/IDA

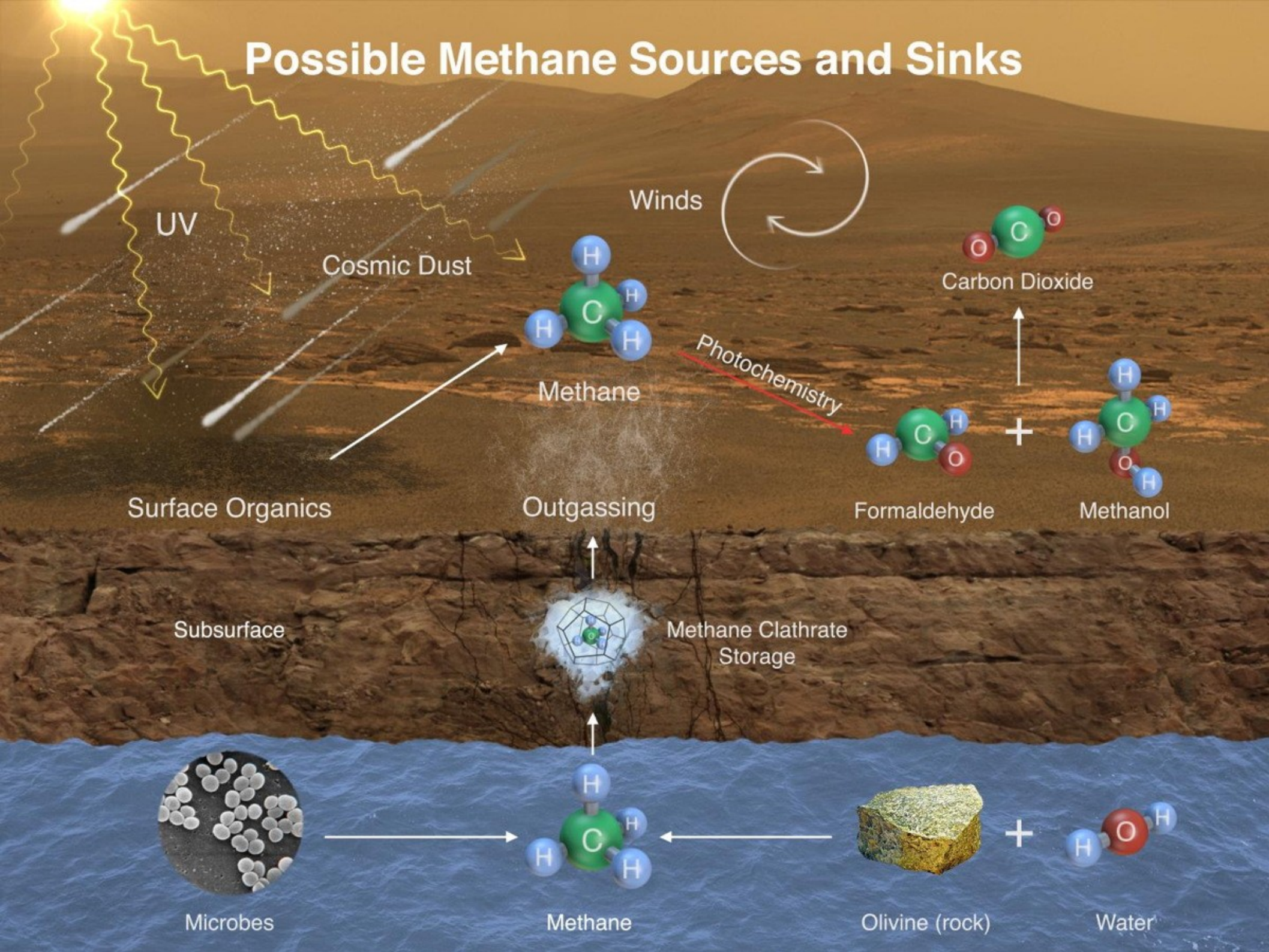
Philae




touchdown point
taken at 15:43
before
taken at 15:18
15:43
15:23
15:19
15:14

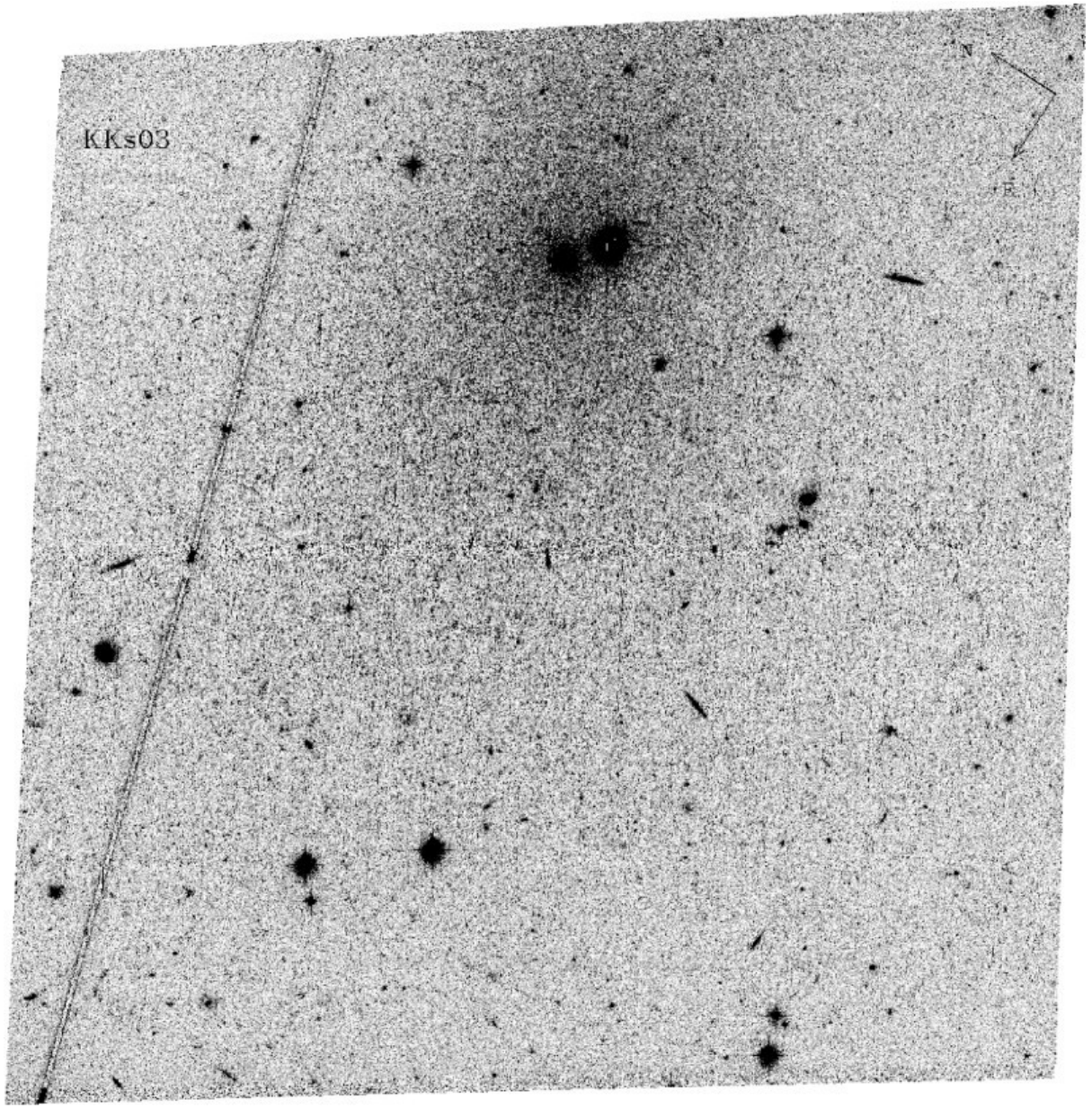


Mars – Metan!

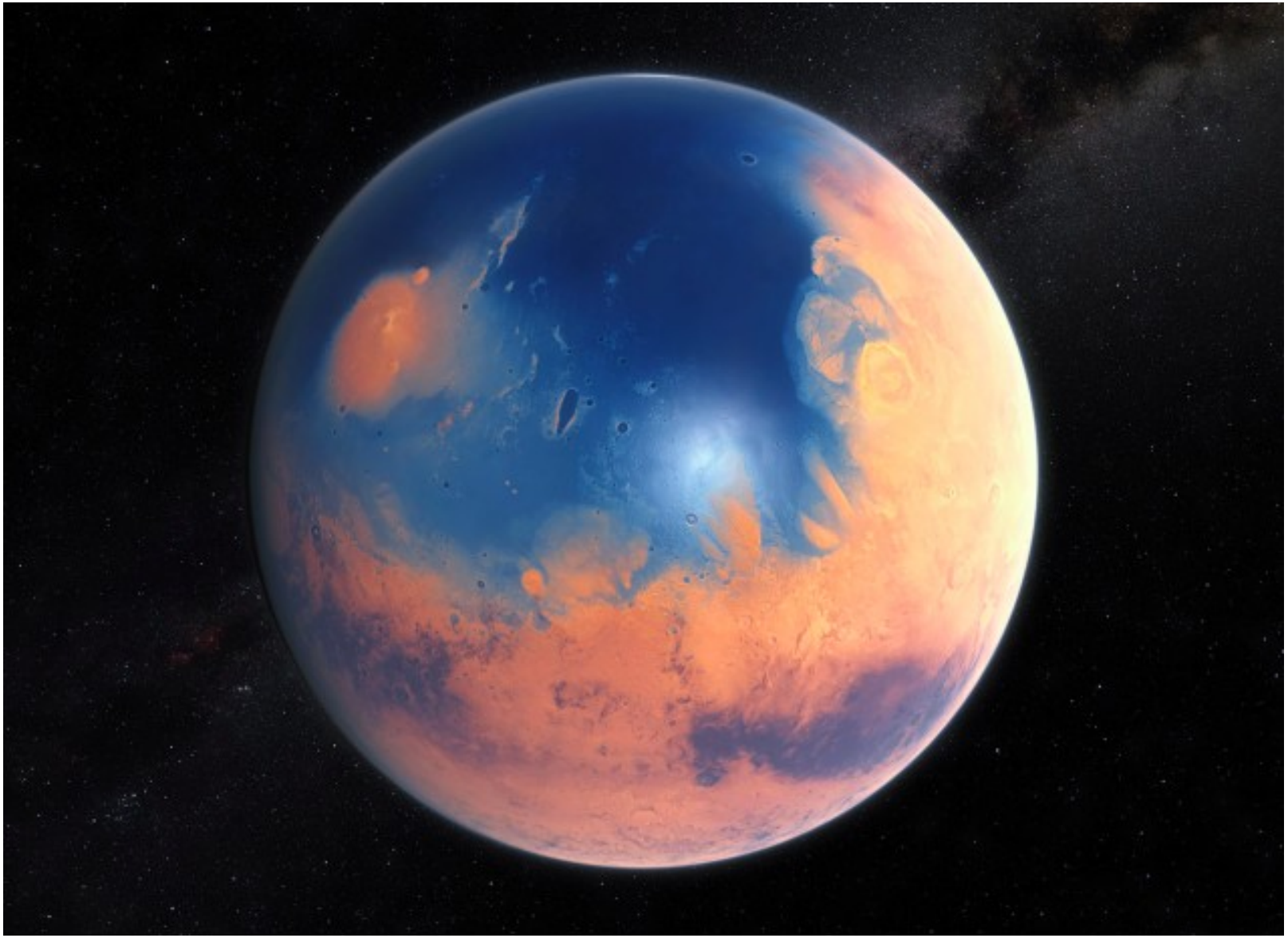

Possible Methane Sources and Sinks
UV
Cosmic Dust
Winds
Carbon Dioxide
Methane
Photochemistry
Surface Organics
Outgassing
Formaldehyde
Methanol
Subsurface
Methane Clathrate
Storage
Microbes
Methane
Olivine (rock)
Water

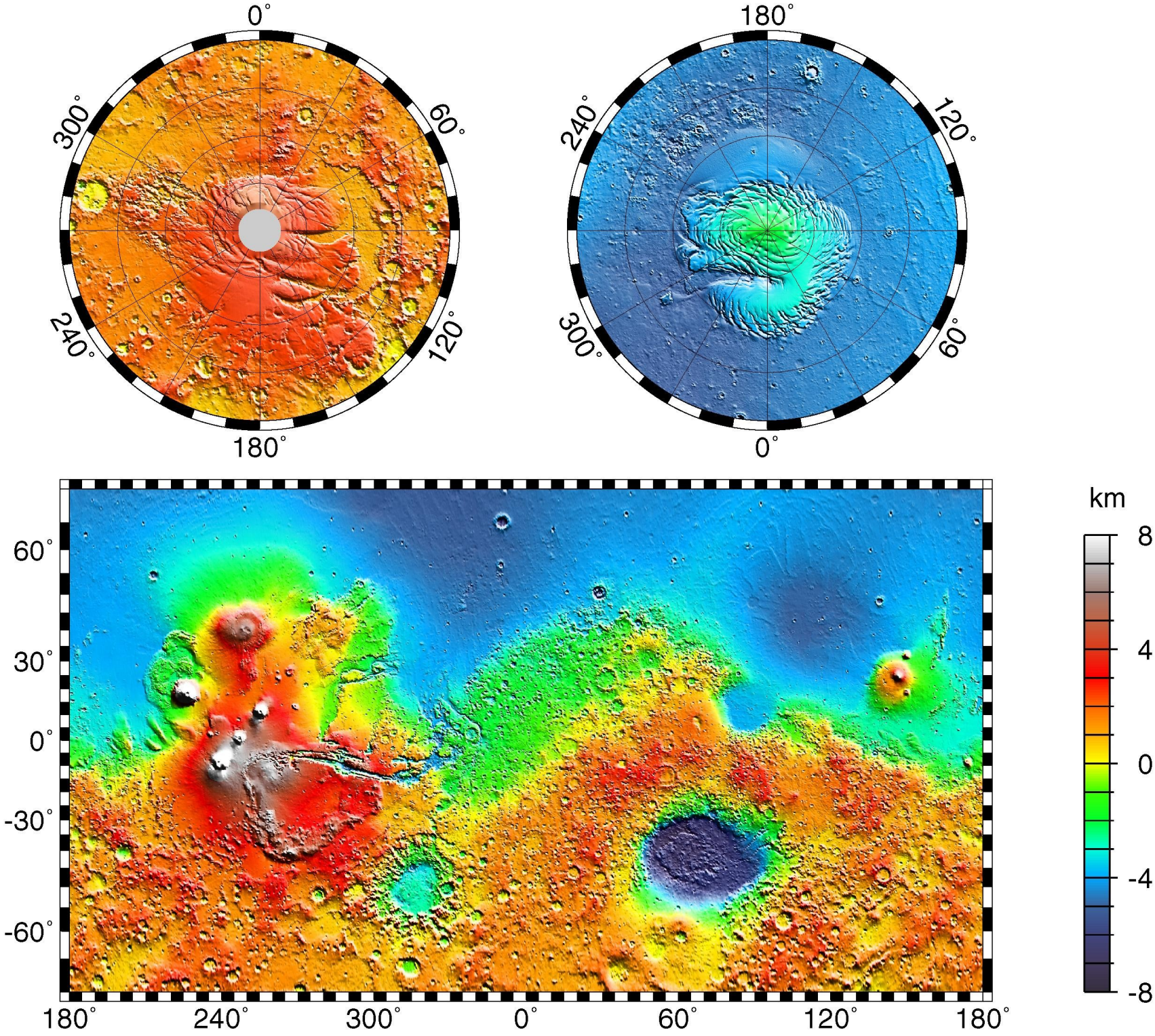
SMBH: z~6.3

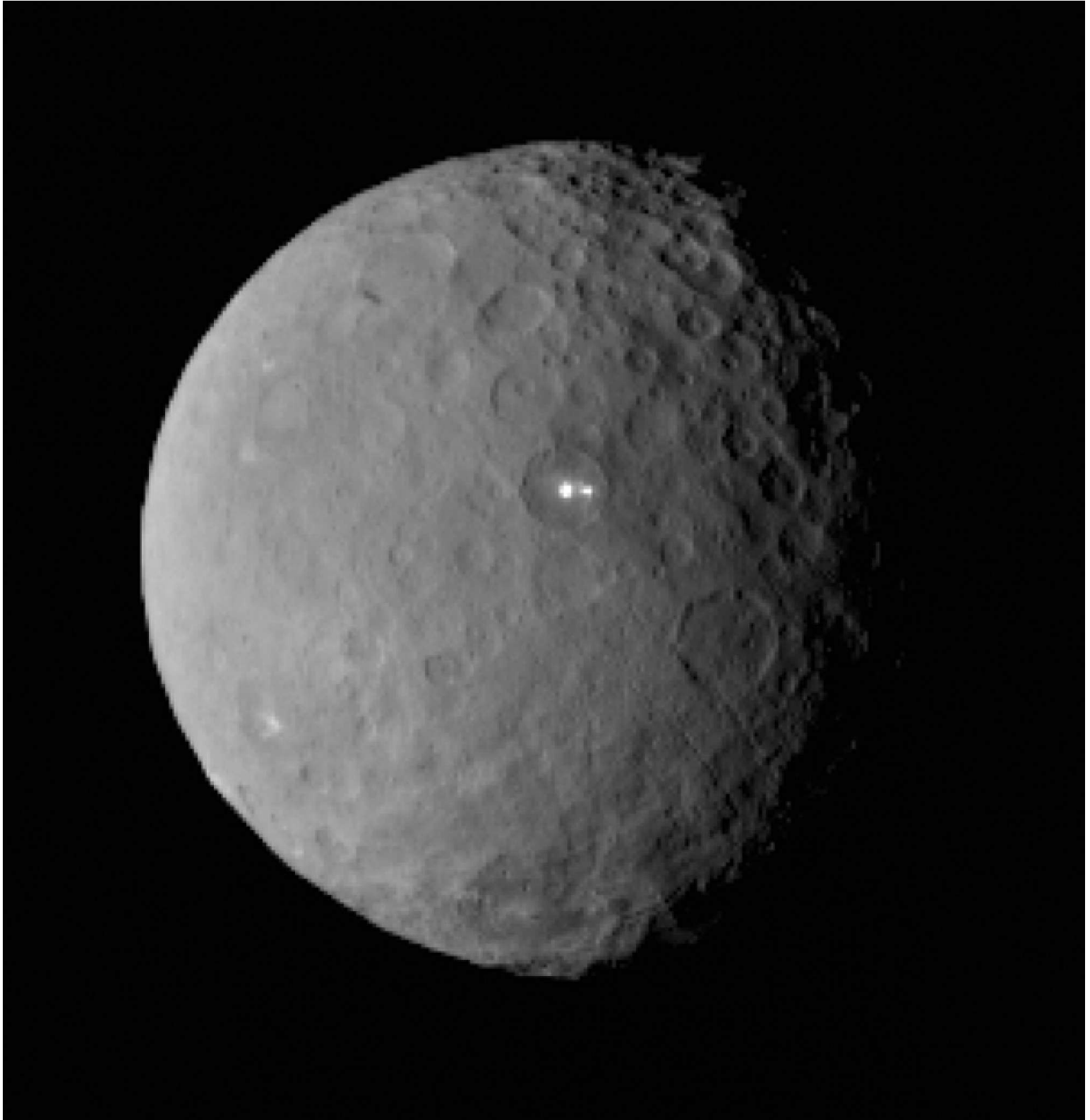
Mlečni put – novi pratioci



Mars - okean



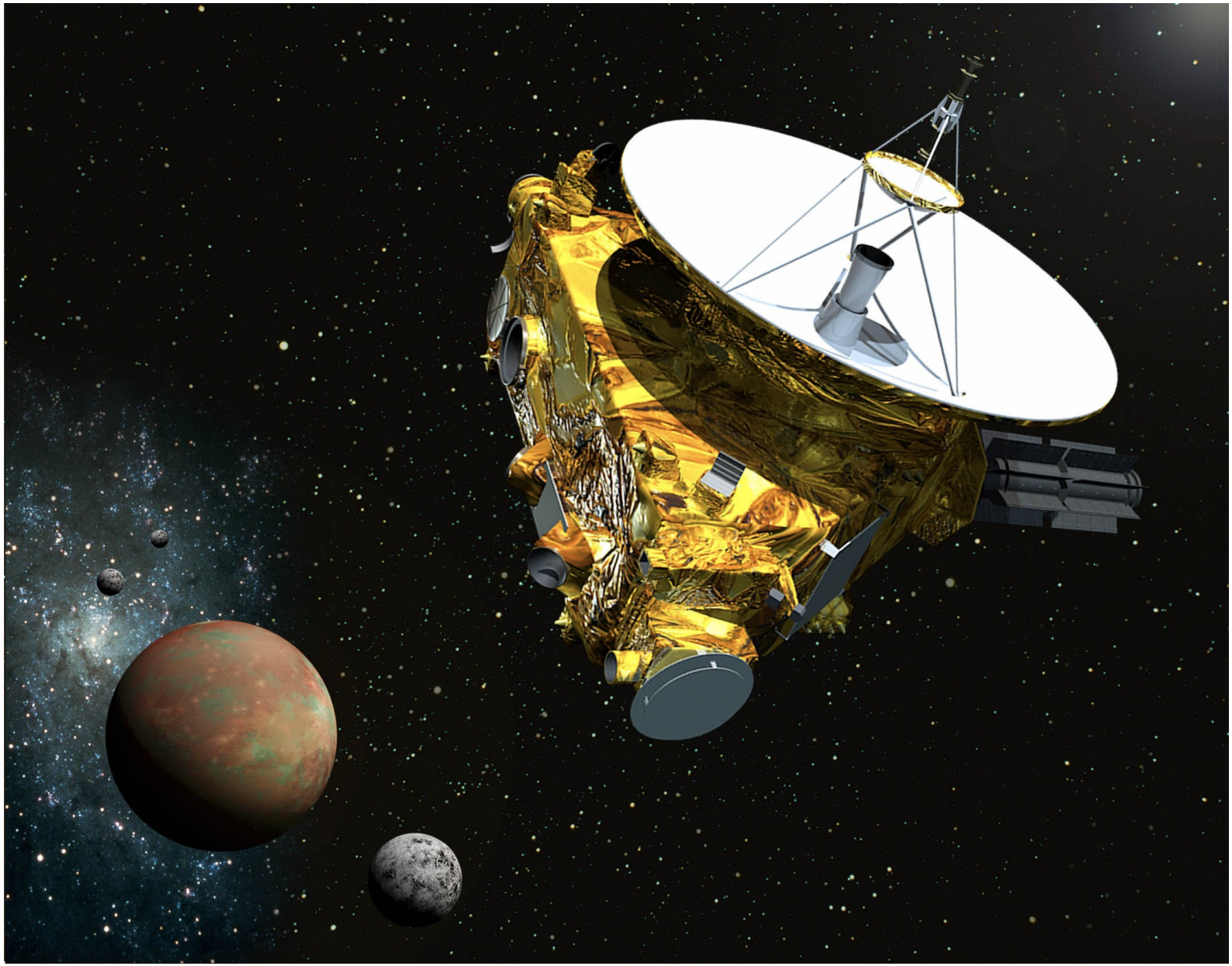

0°
60°
120°
180°
240°
300°
180°
120°
60°
0°
300°
240°
60°
30°
0°
-30°
-60°
180°
240°
300°
0°
60°
120°
180°
km
8
4
0
-4
-8



Ceres

Dawn

New Horizons



Perytons

arxiv.org/abs/1504.02165 perytons

Cornell University Library

arXiv.org > astro-ph > arXiv:1504.02165

Search or Article-id

Astrophysics > Instrumentation and Methods for Astrophysics

Identifying the source of perytons at the Parkes radio telescope

E. Petroff, E. F. Keane, E. D. Barr, J. E. Reynolds, J. Sarkissian, P. G. Edwards, J. Stevens, C. Brem, A. Jameson, S. Burke-Spolaor, S. Johnston, N. D. R. Bhat, P. Chandra, S. Kudale, S. Bhandari

(Submitted on 9 Apr 2015)

"Perytons" are millisecond-duration transients of terrestrial origin, whose frequency-swept emission mimics the dispersion of an astrophysical pulse that has propagated through tenuous cold plasma. In fact, their similarity to FRB 010724 had previously cast a shadow over the interpretation of "fast radio bursts," which otherwise appear to be of extragalactic origin. Until now, the physical origin of the dispersion-mimicking perytons had remained a mystery. We have identified strong out-of-band emission at 2.3--2.5 GHz associated with several peryton events. Subsequent tests revealed that a peryton can be generated at 1.4 GHz when a microwave oven door is opened prematurely and the telescope is at an appropriate relative angle. Radio emission escaping from microwave ovens during the magnetron shut-down phase neatly explain all of the observed properties of the peryton signals. Now that the peryton source has been identified, we furthermore demonstrate that the microwaves on site could not have caused FRB 010724. This and other distinct observational differences show that FRBs are excellent candidates for genuine extragalactic transients.

Comments: 8 pages, 7 figures, 1 table; submitted to MNRAS

Subjects: **Instrumentation and Methods for Astrophysics (astro-ph.IM)**; High Energy Astrophysical Phenomena (astro-ph.HE)

Cite as: **arXiv:1504.02165 [astro-ph.IM]**

(or **arXiv:1504.02165v1 [astro-ph.IM]** for this version)

Pa kako ostati u toku?

ADS

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☐ Require author for selection

(◉ OR ○ AND ○ simple logic)

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Arxiv

Astrophysics

New submissions

Submissions received from Wed 22 Apr 15 to Thu 23 Apr 15, announced Fri, 24 Apr 15

- New submissions
- Cross-lists
- Replacements

[total of 92 entries: **1-92**]
[showing up to 2000 entries per page: fewer | more]

New submissions for Fri, 24 Apr 15

[1] **arXiv:1504.05951 [pdf, ps, other]**

Short and long term evolution of a stellar disk around a massive black hole: The role of binaries, the cusp and stellar evolution

Diego N. Mikhaloff, Hagai B. Perets

Comments: Comments are welcome

Subjects: **Astrophysics of Galaxies (astro-ph.GA)**

We study the dynamical evolution of a stellar disk orbiting a massive black hole. We explore the role of two-body relaxation, mass segregation, stellar evolution and binary heating in affecting the disk evolution, and consider the impact of the nuclear cluster structure and the stellar-disk mass-function. We use analytic arguments and numerical calculations, and apply them to study the evolution of a stellar disk (similar to that observed in the Galactic center; GC), both on the short (few Myr) and longer (100 Myr) evolutionary timescales. We find the dominant processes affecting the disk evolution are two-body relaxation and mass segregation where as binary heating have only a little contribution. Massive stars play a dominant role in kinematically heating low mass stars, and driving them to high eccentricities/inclinations. Multi-mass models with realistic mass-functions for the disk stars show the disk structure to be mass stratified, with the most massive stars residing in thinner structures. Stellar evolution plays an important role in decreasing the number of massive stars with time, thereby leading to slower relaxation, where the remnant compact objects of these stars are excited to higher eccentricities/inclinations. At these later evolutionary stages dynamical heating by the nuclear cluster plays a progressively more important role. We conclude that the high eccentricities of the disk-stars in the Galactic Center suggest that the disk formed with initially high eccentricities, or that collective or secular processes dominate the disk evolution. Finally, we find that the disk structure is expected to keep a thin structure even after 100 Myrs. It therefore suggests earlier disks now containing only older, lower mass stars might still be observed in the Galactic center, unless destroyed/smeared by other non-two-body relaxation processes.

[2] **arXiv:1504.05952 [pdf, other]**

From pulsar scintillations to coronal heating: discontinuities in magnetohydrodynamics

Jonathan Braithwaite

Astrophysics

Authors and titles for recent submissions

- Fri, 24 Apr 2015
- Thu, 23 Apr 2015
- Wed, 22 Apr 2015
- Tue, 21 Apr 2015
- Mon, 20 Apr 2015

[total of 298 entries: **1-25** | 26-50 | 51-75 | 76-100 | ... | 276-298]
[showing 25 entries per page: fewer | more | all]

Fri, 24 Apr 2015 (showing first 25 of 64 entries)

[1] **arXiv:1504.06311 [pdf, other]**

Herschel dust emission as a probe of starless cores mass: MCLD 123.5+24.9 of the Polaris Flare
Gururaj A. Wagle, Thomas H. Troland, Gary J. Ferland, Nicholas P. Abel
Comments: ApJ, Accepted
Subjects: **Astrophysics of Galaxies (astro-ph.GA)**

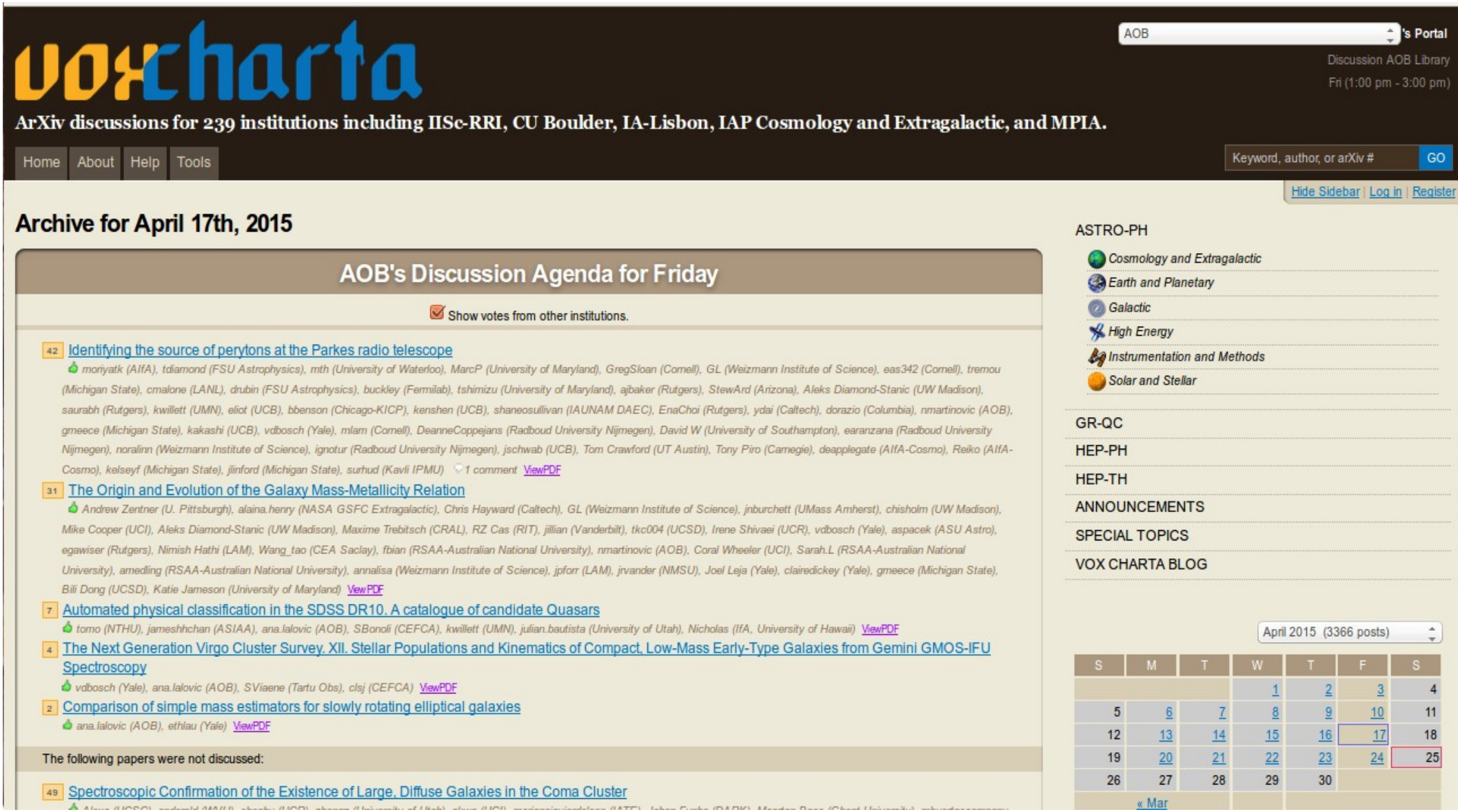
[2] **arXiv:1504.06297 [pdf, other]**

Lagrangian Volume Deformations around Simulated Galaxies
S. Robles, R. Domínguez-Tenreiro, J. Oñorbe, F. J. Martínez-Serrano
Comments: 23 pages, 20 figures. Accepted for publication in MNRAS
Subjects: **Cosmology and Nongalactic Astrophysics (astro-ph.CO)**; Astrophysics of Galaxies (astro-ph.GA)

[3] **arXiv:1504.06296 [pdf, ps, other]**

The chemical evolution of self-gravitating primordial disks
Dominik R.G. Schleicher, Stefano Bovino, Muhammad A. Latif, Andrea Ferrara, Tommaso Grassi
Comments: 12 pages, 5 figures, 6 tables, submitted to A&A
Subjects: **Astrophysics of Galaxies (astro-ph.GA)**

Voxcharta


voxcharta
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Archive for April 17th, 2015
AOB's Discussion Agenda for Friday
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42 Identifying the source of perytons at the Parkes radio telescope
moriyatk (AIfA), tdiamond (FSU Astrophysics), mth (University of Waterloo), MarcP (University of Maryland), GregSloan (Cornell), GL (Weizmann Institute of Science), eas342 (Cornell), tremou (Michigan State), cmalone (LANL), drubin (FSU Astrophysics), buckley (Fermilab), tshimizu (University of Maryland), ajbaker (Rutgers), StewArd (Arizona), Aleks Diamond-Stanic (UW Madison), saurabh (Rutgers), kwillett (UMN), eliot (UCB), bbenson (Chicago-KICP), kenshen (UCB), shaneosullivan (IAUNAM DAEC), EnaChoi (Rutgers), ydai (Caltech), dorazio (Columbia), nmartinovic (AOB), gmeece (Michigan State), kakashi (UCB), vdbosch (Yale), mlam (Cornell), DeanneCoppejans (Radboud University Nijmegen), David W (University of Southampton), earanzana (Radboud University Nijmegen), noralinn (Weizmann Institute of Science), ignotur (Radboud University Nijmegen), jschwab (UCB), Tom Crawford (UT Austin), Tony Piro (Carnegie), deapplegate (AIfA-Cosmo), Reiko (AIfA-Cosmo), kelseyf (Michigan State), jlinford (Michigan State), surhud (Kavli IPMU) 1 comment ViewPDF
31 The Origin and Evolution of the Galaxy Mass-Metallicity Relation
Andrew Zentner (U. Pittsburgh), alaina.henry (NASA GSFC Extragalactic), Chris Hayward (Caltech), GL (Weizmann Institute of Science), jnburchett (UMass Amherst), chisholm (UW Madison), Mike Cooper (UCI), Aleks Diamond-Stanic (UW Madison), Maxime Trebitsch (CRAL), RZ Cas (RIT), jillian (Vanderbilt), tkc004 (UCSD), Irene Shivaei (UCR), vdbosch (Yale), aspacek (ASU Astro), egawiser (Rutgers), Nimish Hathi (LAM), Wang_tao (CEA Saclay), fbian (RSAA-Australian National University), nmartinovic (AOB), Coral Wheeler (UCI), Sarah.L (RSAA-Australian National University), amedling (RSAA-Australian National University), annalisa (Weizmann Institute of Science), jpforr (LAM), jrvander (NMSU), Joel Leja (Yale), clairedickey (Yale), gmeece (Michigan State), Bili Dong (UCSD), Katie Jameson (University of Maryland) ViewPDF
7 Automated physical classification in the SDSS DR10. A catalogue of candidate Quasars
tomo (NTHU), jameshhchan (ASIAA), ana.lalovic (AOB), SBonoli (CEFCA), kwillett (UMN), julian.bautista (University of Utah), Nicholas (IfA, University of Hawaii) ViewPDF
4 The Next Generation Virgo Cluster Survey. XII. Stellar Populations and Kinematics of Compact, Low-Mass Early-Type Galaxies from Gemini GMOS-IFU Spectroscopy
vdbosch (Yale), ana.lalovic (AOB), SViaene (Tartu Obs), clsj (CEFCA) ViewPDF
2 Comparison of simple mass estimators for slowly rotating elliptical galaxies
ana.lalovic (AOB), ethlau (Yale) ViewPDF
The following papers were not discussed:
49 Spectroscopic Confirmation of the Existence of Large, Diffuse Galaxies in the Coma Cluster
ASTRO-PH
Cosmology and Extragalactic
Earth and Planetary
Galactic
High Energy
Instrumentation and Methods
Solar and Stellar
GR-QC
HEP-PH
HEP-TH
ANNOUNCEMENTS
SPECIAL TOPICS
VOX CHARTA BLOG
April 2015 (3366 posts)
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12 13 14 15 16 17 18
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New papers (47)

Collapse

[astro-ph #1] Constraints on the missing baryons from the kinetic Sunyaev-Zeldovich effect in Planck data

0 votes @AOB
(13 votes from 10 institutions)
Please login or create an account to vote!

Carlos Hernández-Monteagudo[1], Yin-zhe Ma[2], Francisco-Shu Kitaura[3], Wenting Wang[4], Ricardo Génova-Santos[5], Juan Macías-Pérez[6], Diego Herranz[7]

[1]CEFCA, Teruel, [2]Jodrell Bank, Manchester, [3]AIP, Potsdam, [4]ICC, Durham, [5]IAC, Tenerife, [6]CNRS, Grenoble, and, [7]IFCA, Santander

ArXiv #: 1504.04011 (PDF, PS, ADS, Papers, Other)

Comments: 5 pages, 3 plots, submitted

Originally posted 04/16/2015

CO

We estimate the amount of the missing baryons detected by the Planck measurements of the kinetic Sunyaev-Zeldovich effect (kSZ) around members of the Central Galaxy Catalogue (CGC) from the seventh release of the Sloan Survey. We use two statistics yielding evidence for kSZ signal, namely the pairwise peculiar momentum and the correlation function of the kSZ temperature estimates and predicted line-of-sight peculiar velocities. We find that both statistics yield consistent measurements of the Thomson optical depth $\tau_{\rm T}$ in the range of $0.5\text{-}1.4 \times 10^{-4}$ for angular apertures that, on average, correspond to a range of distances of > 1 to almost 3 virial radii from the centres of the CG host halos. We find that, for the larger apertures for which we still have significant ($2\text{-}2.5\,\sigma$) kSZ detection, the regions probed around CGs contain roughly half the total amount of baryons present in the cosmological volume sampled by the Sloan footprint at $z \simeq 0.12$. Furthermore, under the assumption that baryons trace the dark matter distribution, our $\tau_{\rm T}$ measurements are compatible with having detected all the missing baryons around the CGs. Finally, our kSZ measurements yield no evidence for a kSZ dipole on the positions the CGs, providing the strongest constraints on the local bulk flow at a distance of $350\,h^{-1}$ Mpc (below 290 km s^{-1} at 95% confidence level), and adding further evidence for the Copernican principle of homogeneity.

[astro-ph #2] Discovery of kpc-scale line emission in barred galaxies, not linked to AGN or star formation

0 votes @AOB
(16 votes from 13 institutions)
Please login or create an account to vote!

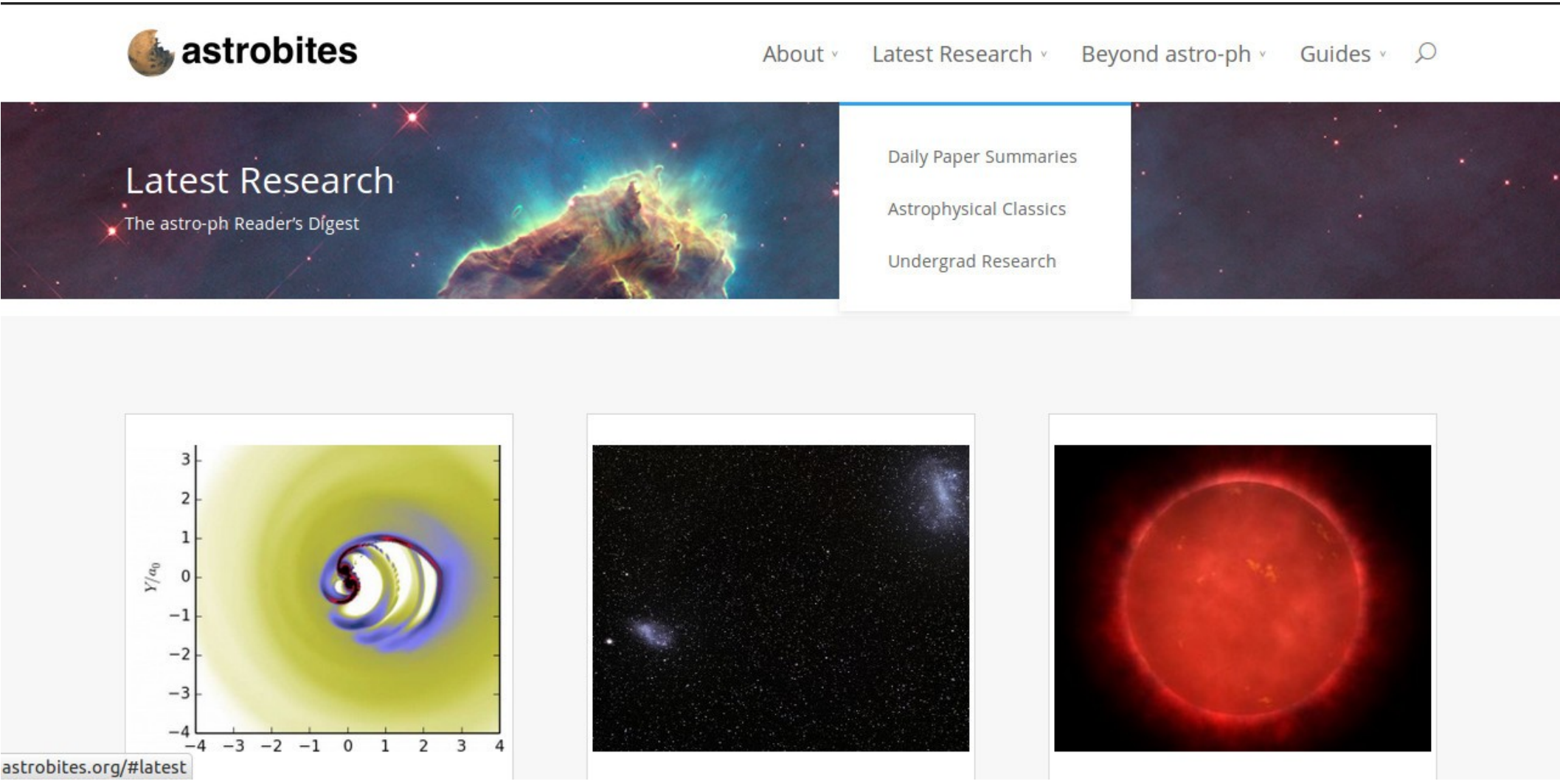
Phil A. James[1], Susan M. Percival[1]

[1]Liverpool John Moores University

ArXiv #: 1504.04013 (PDF, PS, ADS, Papers, Other)

GA

Astrobites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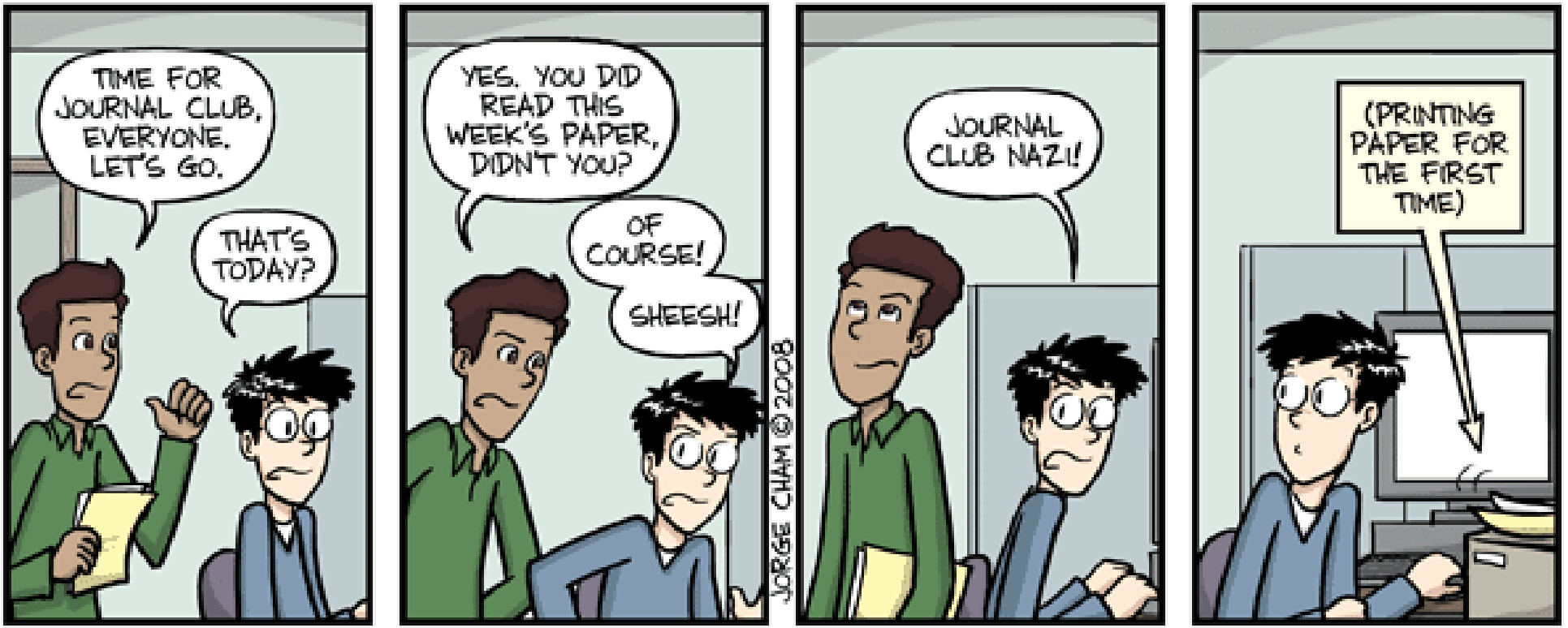

Hvala na pažnji!

A sad pitanja!