The Faulkes Telescope Project

Fraser Lewis

The Faulkes Telescope Project

We provide (robotic) telescope time for free to teachers and other educators across the globe (not just UK or EU)

We also provide resources to help teachers find suitable targets and sample datasets to develop skills such as image processing and photometry

What is a Robotic Telescope ?

What is a Robotic Telescope ?

One that is not controlled directly by a person

Has some degree of independence and/or remoteness

Has a schedule to stick to

Knows the weather, what to do if the weather is bad … and when it’s dark

Can you name any ?

Can you name any ?

All spacecraft (!)

Hubble, Chandra, XMM-Newton, Gaia, Spitzer

Teide (PIRATE, COAST)

La Palma (Liverpool Telescope)

Why Use Robotic Telescopes ?

Why Use Robotic Telescopes ?

More Efficient Use of Limited Resource

Removes Human “Thinking Time”

Rapid Response to Targets of Opportunity (ToO)

Provides Telescope Time and Access to Students and Teachers

Saleable Resource To Amateurs

Stops Astronomers Flying to Sunny Places

Another Question for You

What do we need for a good telescope site ?

Another Question for You

What do we need for a good telescope site ?

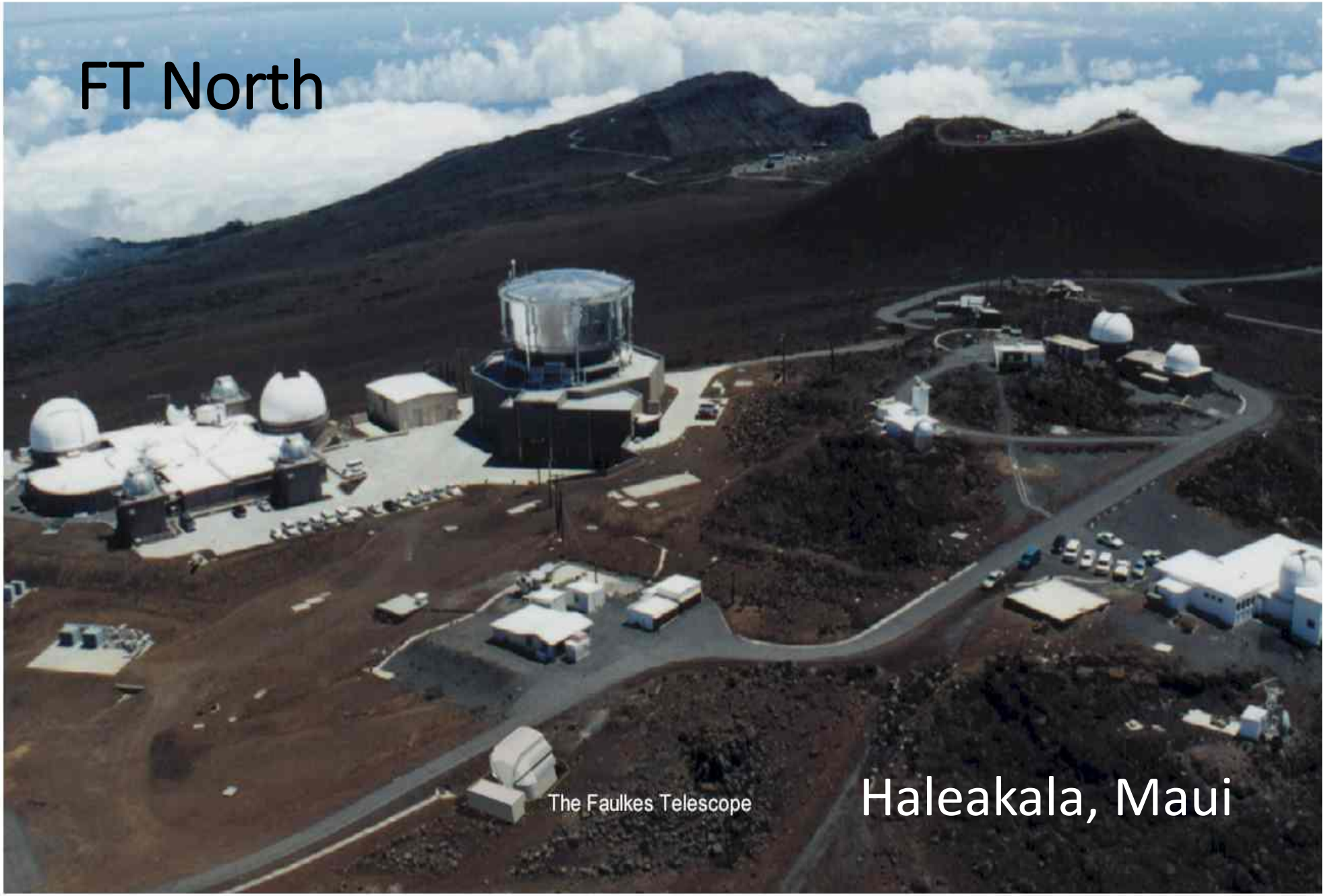
Clear skies – clear from clouds, light and chemical pollution

Generally, this = ‘away from humans’

Stable governments, provision of internet, infrastructure (access, power)

e.g. the VLT at Paranal, Chile had two water trucks per day driving from the nearest town (130 km)… and its own fire engine onsite !

FT North



2-metre Faulkes Telescopes

~ £5 million (6m Euros)

Richey-Cretien **f/10**
Alt/Az mount

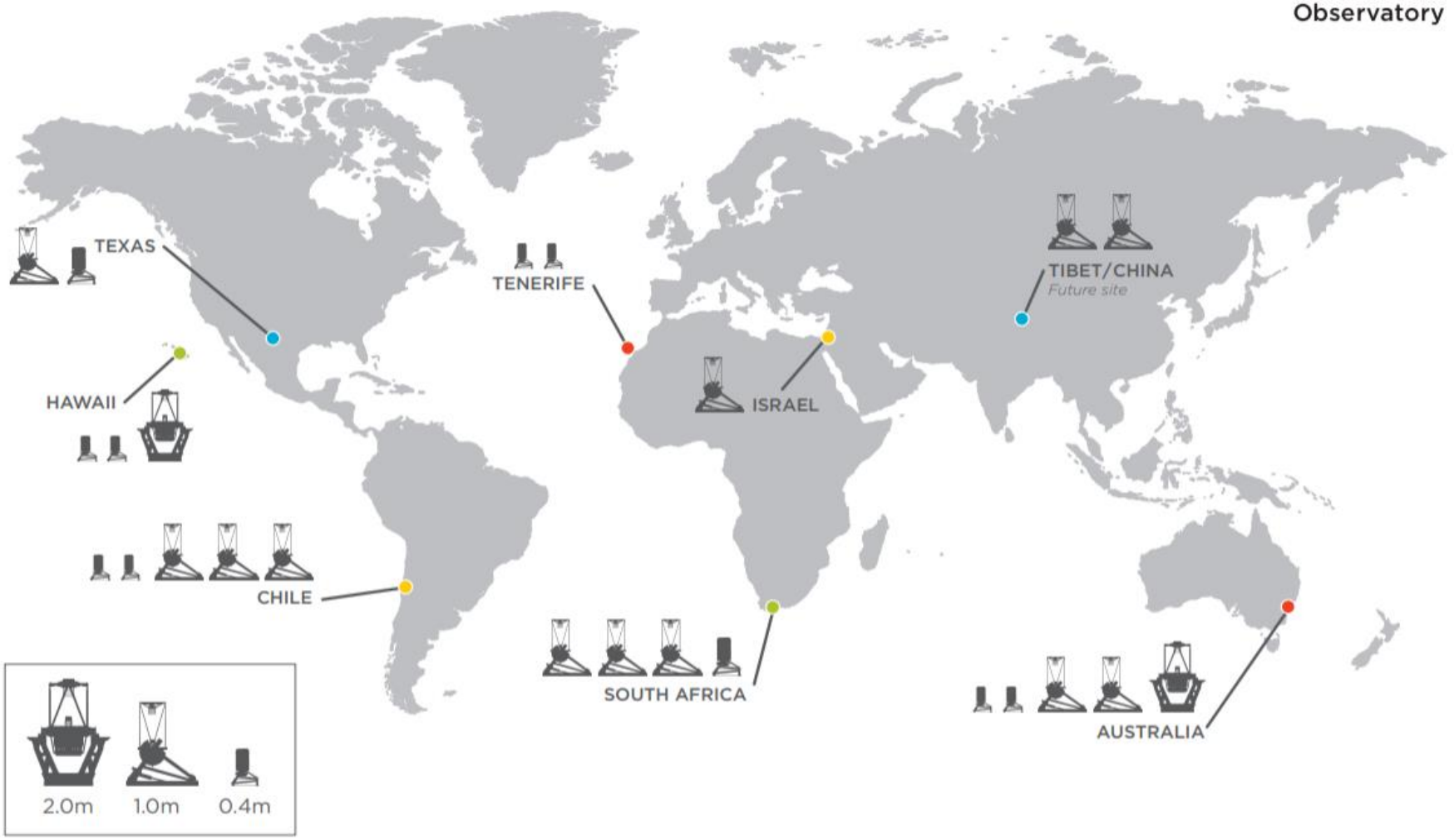
CCD camera
FT North; MuSCAT3 – griz simultaneous
FT South; Spectral (Johnson + SDSS)

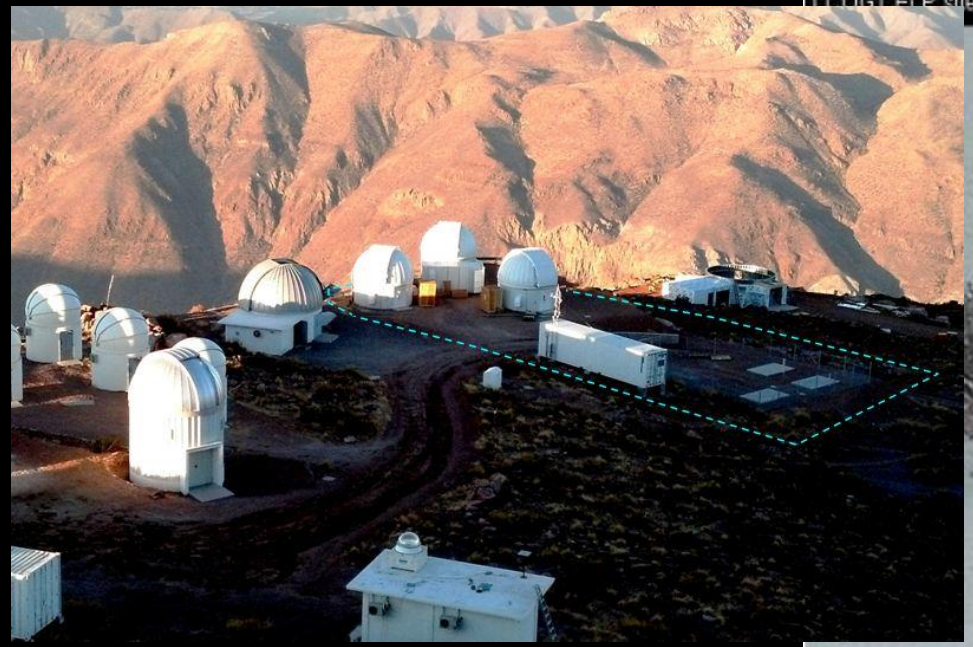
Spectrograph (FLOYDS; R~400-700)

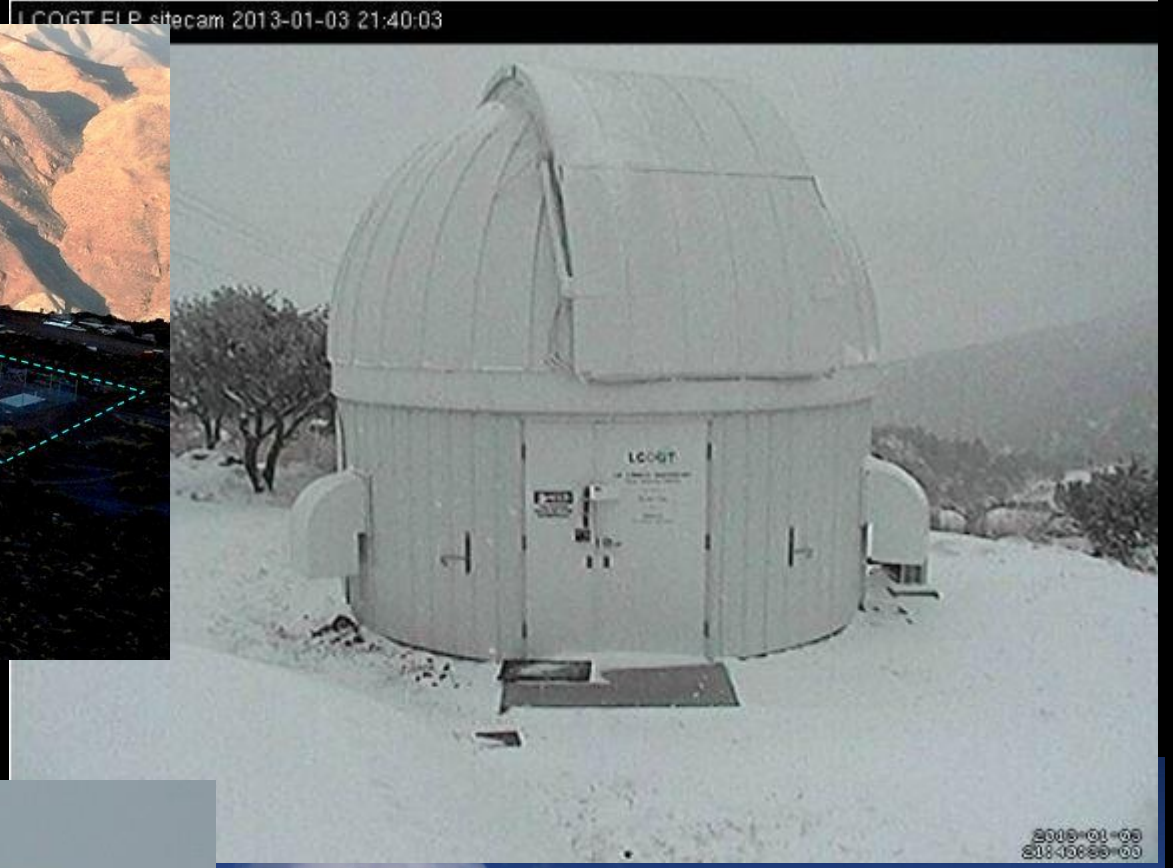
https://lco.global/observatory/instruments/

GLOBAL TELESCOPE NETWORK

Las Cumbres Observatory

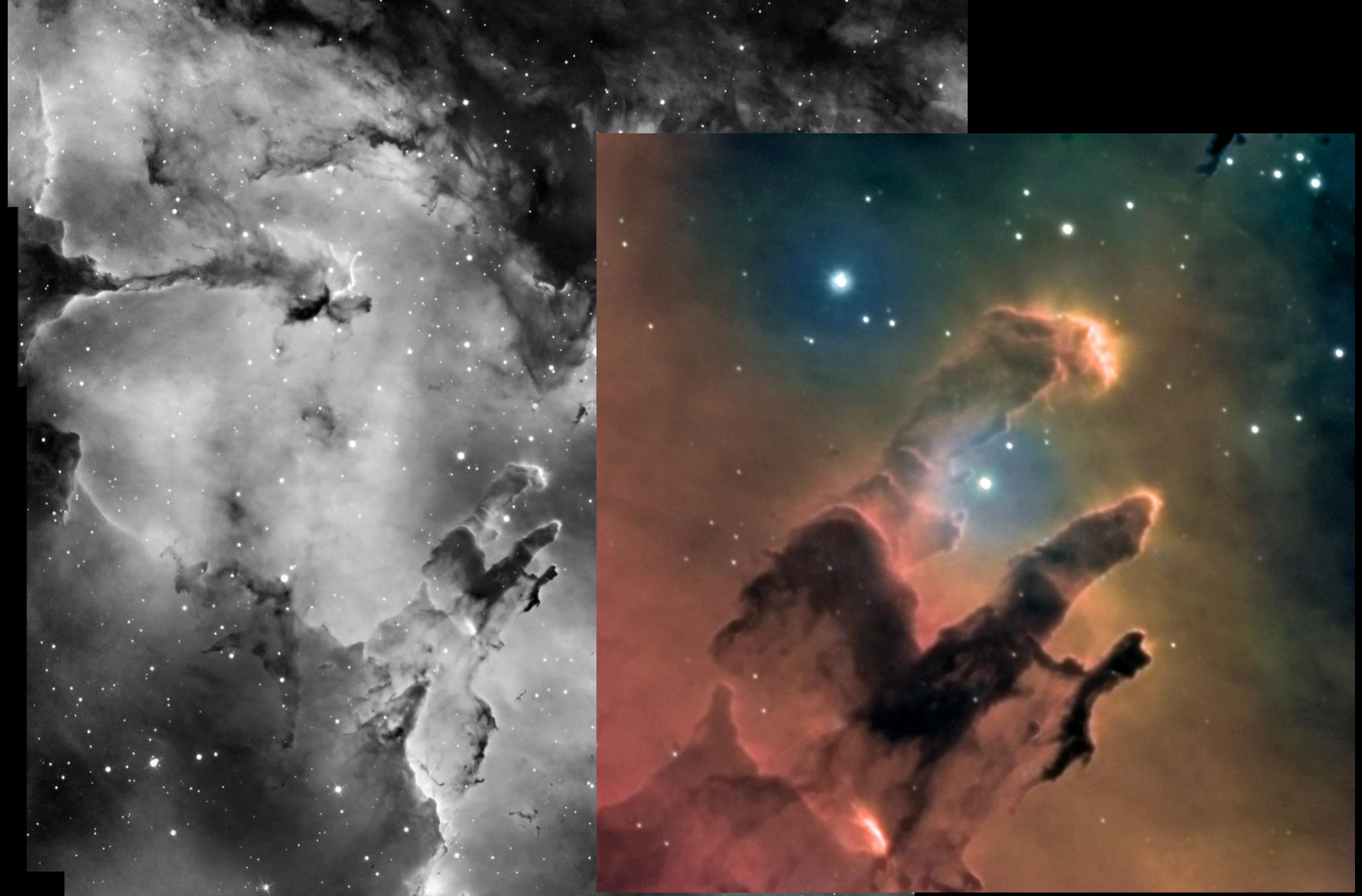


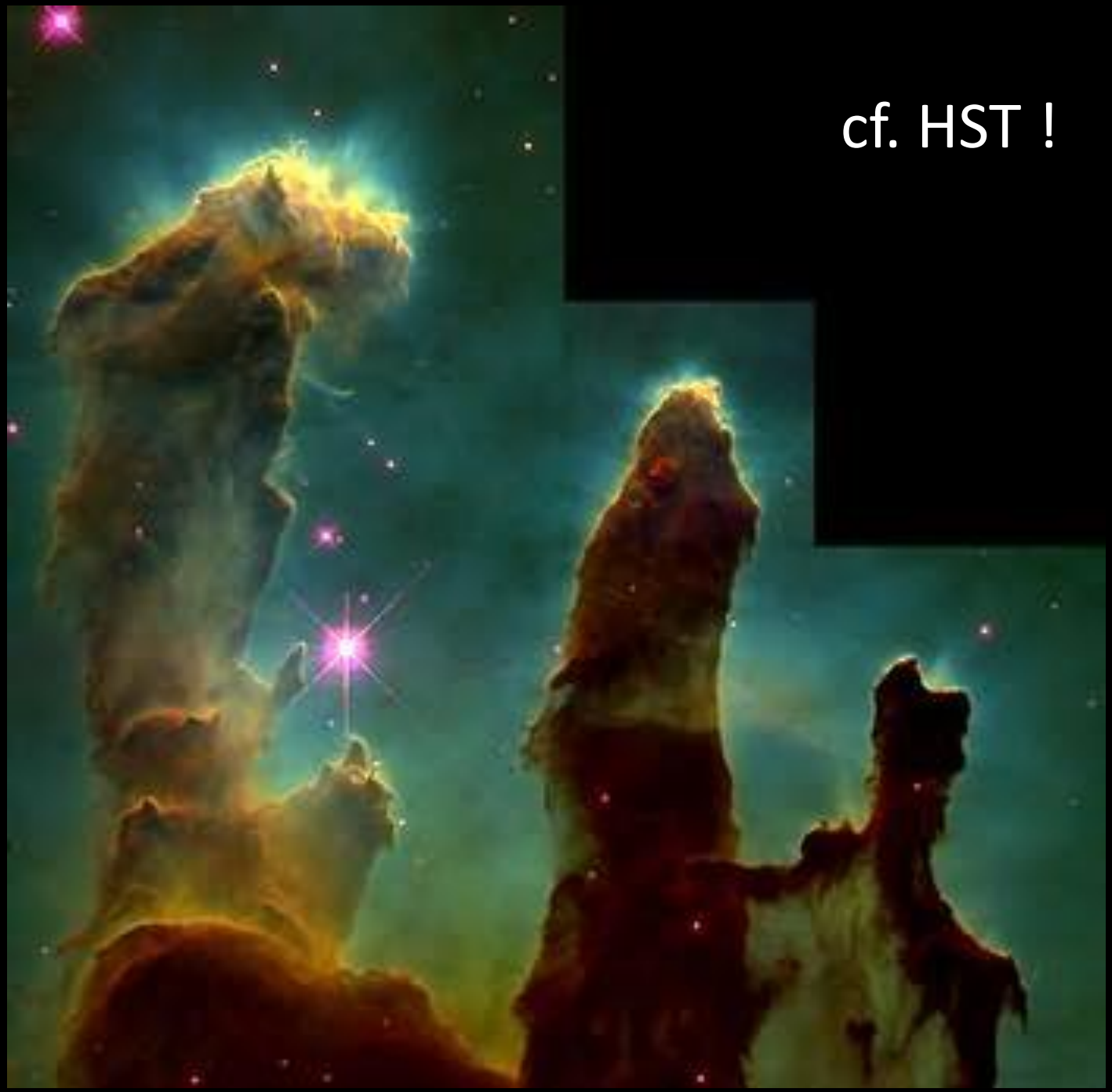



LCOGT ELP sitecam 2013-01-03 21:40:03
LCOGT
2013-01-03
21:40:33.00


14/09/2012 12:40


2 x 0.4m
Mt. Teide, Tenerife,
Canary Islands





cf. HST !

What subjects or topics can you teach using astronomy ?

Traditional STEM could include

Physics (light, gravity, magnetism)

Chemistry (spectroscopy, elements, radioactivity)

Biology (life, extinctions, exoplanets)

IT (Excel, Python, big data, digital/online learning)

Maths (graphs, trends, errorbars, logarithms)

Geology, Geography (planets, weather, atmospheres)

Schools in research publications

Astronomy & Astrophysics manuscript no. paper
October 1, 2020

Gaia18aen: First symbiotic star discovered by *Gaia*

J. Merc[1,2⋆], J. Mikołajewska[3], M. Gromadzki[4], C. Gałan[3], K. Iłkiewicz[3,5], J. Skowron[4], Ł. Wyrzykowski[4], S. T. Hodgkin[6], K. A. Rybicki[4], P. Zieliński[4], K. Kruszyńska[4], V. Godunova[7], A. Simon[8], V. Reshetnyk[8], F. Lewis[9,10], U. Kolb[11], M. Morrell[11], A. J. Norton[11], S. Awiphan[12], S. Poshyachinda[12], D. E. Reichart[13], M. Greet[14], and J. Kolgjini[14]

[1] Astronomical Institute, Faculty of Mathematics and Physics, Charles University, V Holešovičkách 2, 180 00 Prague, Czechia
[2] Institute of Physics, Faculty of Science, P. J. Šafárik University, Park Angelinum 9, 040 01 Košice, Slovakia
[3] Nicolaus Copernicus Astronomical Center, Polish Academy of Sciences, Bartycka 18, 00–716 Warsaw, Poland
[4] Astronomical Observatory, University of Warsaw, Al. Ujazdowskie 4, 00-478 Warszaw, Poland
[5] Department of Physics and Astronomy, Box 41051, Science Building, Texas Tech University, Lubbock, TX 79409-1051, USA
[6] Institute of Astronomy, University of Cambridge, Madingley Road CB3 0HA, Cambridge, UK
[7] ICAMER Observatory of NASU, 27 Acad. Zabolotnoho str., Kyiv, 03143, Ukraine
[8] Faculty of Physics, Taras Shevchenko National University of Kyiv, 4 Glushkova Ave., Kyiv, 03022, Ukraine
[9] Faulkes Telescope Project, School of Physics, and Astronomy, Cardiff University, The Parade, Cardiff CF24 3AA, UK
[10] Astrophysics Research Institute, Liverpool John Moores University, 146 Brownlow Hill, Liverpool L3 5RF, UK
[11] School of Physical Sciences, The Open University, Walton Hall, Milton Keynes MK7 6AA, UK
[12] National Astronomical Research Institute of Thailand, 260, Moo 4, T. Donkaew, A. Mae Rim, Chiang Mai, 50180, Thailand
[13] Department of Physics and Astronomy, University of North Carolina at Chapel Hill, Chapel Hill, NC 27599, USA
[14] Eastbury Community School, Hulse Avenue, Barking IG11 9UW, UK

Schools in research publications

Draft version March 25, 2019
Preprint typeset using LaTeX style emulateapj v. 08/22/09

BRIGHT MINI-OUTBURST ENDS THE 12−YEAR LONG ACTIVITY OF THE BLACK HOLE CANDIDATE SWIFT J1753.5−0127

G.-B. Zhang[1,2,3,4], F. Bernardini[5,6,4], D.M. Russell[4], J.D. Gelfand[4,7], J.-P. Lasota[8,9], A. Al Qasim[4,10], A. AlMannaei[4,10], K. I. I. Koljonen[11, 12], A.W. Shaw[13], F. Lewis[14,15], J.A. Tomsick[16], R.M. Plotkin[17], J.C.A. Miller-Jones[17], D. Maitra[18], J. Homan[19,20], P.A. Charles[21], P. Kobel[22], D. Perez[22], and R. Doran[23]

[1]Yunnan Observatories, Chinese Academy of Sciences (CAS), Kunming 650216, P.R. China, Email: zhangguobao@ynao.ac.cn
[2]Key Laboratory for the Structure and Evolution of Celestial Objects, CAS, Kunming 650216, P.R. China
[3]Center for Astronomical Mega-Science, CAS, Beijing, 100012, P. R. China
[4]New York University Abu Dhabi, P.O. Box 129188, Abu Dhabi, United Arab Emirates
[5]INAF − Osservatorio Astronomico di Roma, via Frascati 33, I-00040 Monteporzio Catone, Roma, Italy
[6]INAF − Osservatorio Astronomico di Capodimonte, Salita Moiariello 16, I-80131 Napoli, Italy
[7]Center for Cosmology and Particle Physics, New York University, Meyer Hall of Physics, 4 Washington Place, New York, NY 10003, USA
[8]Institut d'Astrophysique de Paris, CNRS et Sorbonne Universités, UPMC Paris 06, UMR 7095, 98bis Bd Arago, 75014 Paris, France
[9]Nicolaus Copernicus Astronomical Center, Bartycka 18, 00-716 Warsaw, Poland
[10]Mullard Space Science Laboratory, University College London, Holmbury St. Mary, Dorking, Surrey RH5 6NT, UK
[11]Finnish Centre for Astronomy with ESO (FINCA), University of Turku, Väisäläntie 20, 21500 Piikkiö, Finland
[12]Aalto University Metsähovi Radio Observatory, PO Box 13000, FI-00076 Aalto, Finland
[13]Department of Physics, University of Alberta, 4-181 CCIS, Edmonton, AB T6G 2E1, Canada
[14]Faulkes Telescope Project, School of Physics, and Astronomy, Cardiff University, The Parade, Cardiff, CF24 3AA, Wales, UK
[15]Astrophysics Research Institute, Liverpool John Moores University, 146 Brownlow Hill, Liverpool L3 5RF, UK
[16]Space Sciences Laboratory, 7 Gauss Way, University of California, Berkeley, CA 94720-7450, USA
[17]International Centre for Radio Astronomy Research-Curtin University, GPO Box U1987, Perth, WA 6845, Australia
[18]Department of Physics and Astronomy, Wheaton College, Norton, MA 02766, USA
[19]Eureka Scientific, Inc., 2452 Delmer Street, Oakland, CA 94602, USA
[20]SRON, Netherlands Institute for Space Research, Sorbonnelaan 2, 3584 CA Utrecht, The Netherlands
[21]Department of Physics & Astronomy, University of Southampton, Southampton, SO17 1BJ, UK
[22]Gymnase du Bugnon-Sévelin, Avenue de Sévelin 44, 1004 Lausanne, Switzerland and
[23]NUCLIO - Núcleo Interactivo de Astronomia, Largo dos Topázios, 48, 3 Frt, PT2785–817 S. D. Rana, Portugal

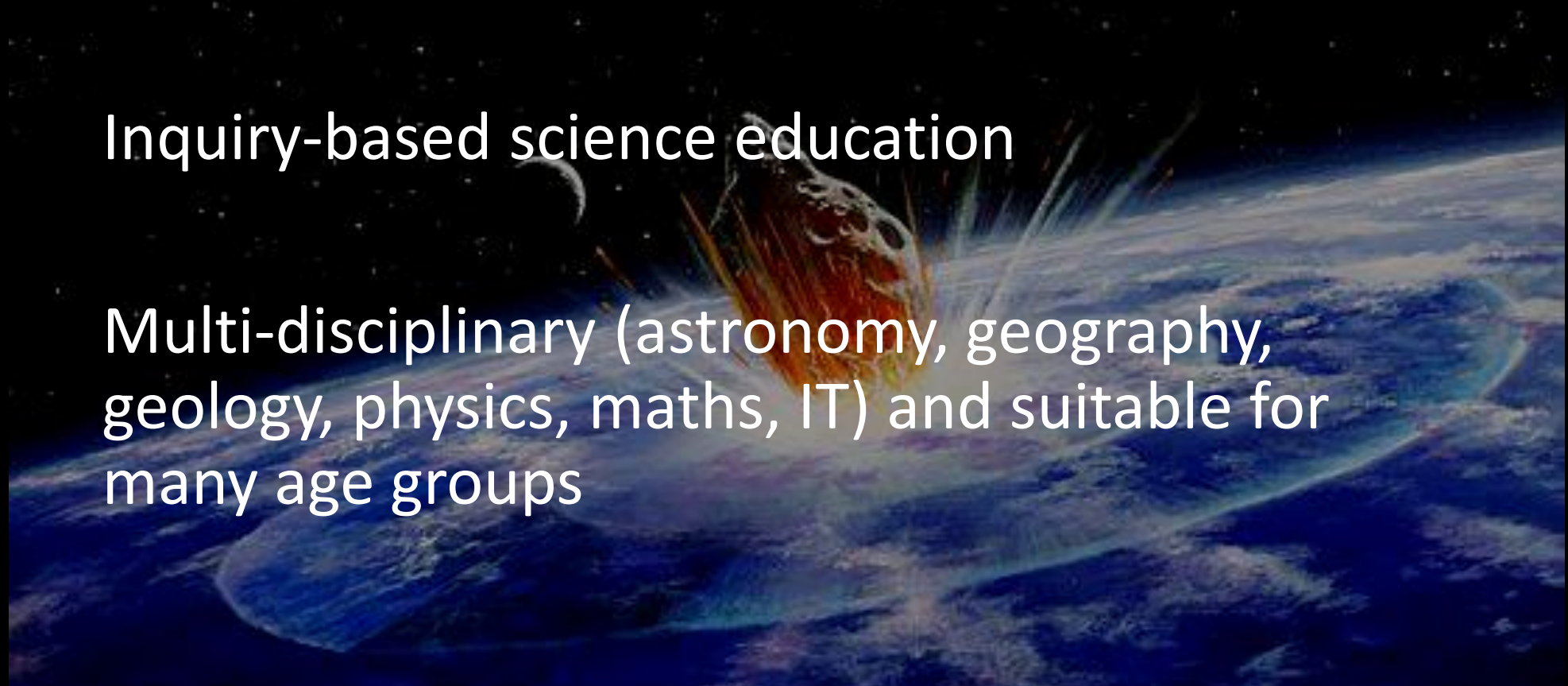
Draft version March 25, 2019

What is “Down to Earth”?

A STEM project based around the science of asteroids, comets, meteorites and impacts

Inquiry-based science education

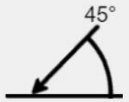
Multi-disciplinary (astronomy, geography, geology, physics, maths, IT) and suitable for many age groups



Projectile diameter

8100 m

Trajectory angle



Projectile velocity

Projectile density

Porous rock

Target density

Igneous rock

Distance from crash site

119 km

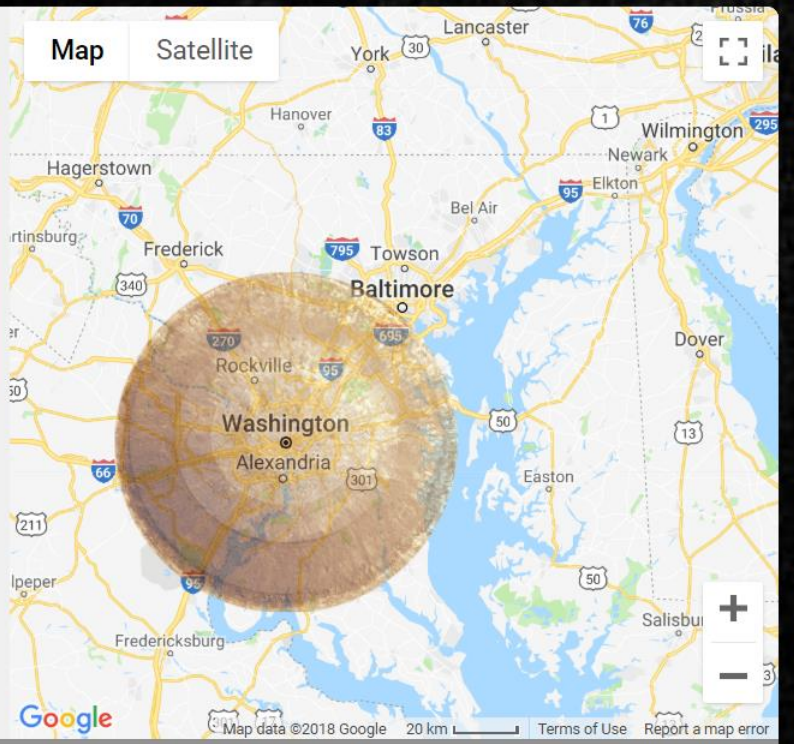
Reset ? Submit

Impact values

Parameter	Value
Crater depth	1,211 m
Crater width	107,844 m
Ejecta thickness	81.46 m
Break-up altitude	87,701 m
Wind velocity	3,073 m/s
Richter magnitude	10
Sound pulse amplitude	143 dB

New York

Click the map to place the crater...



You can register for the FT Project (it’s free, honest !)

For UK and Ireland, our partners’ countries, the EU
and in fact, everywhere !

http://www.faulkes-telescope.com/support/register/

Email us: info@faulkes-telescope.com

Please e-mail us with any ideas

fraser.lewis@faulkes-telescope.com

Old Resources Site: http://resources.faulkes-telescope.com/

New Resources Site: https://sites.google.com/view/faulkestelescopeproject/home

http://faulkes-telescope.com

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