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January 1: New Year

Galileo was the first to observe the Moon through a telescope. Here a mosaic of images of the Moon observed with DOLORES at the TNG in the U band.

Credits: TNG





OBSERVAT. SIDERE AE

Ann dizreim. Deprefitors infiger in Lans cerumturnatoria mianto, quina diarote plags; initi a emitran orgeneta, quina diarote plags; initi a emibarannégue confisio, prominente binicale circa plags magnas navalas contermini partis lucidoris; yellui in decirchenti figuno isofurnaunas se longe de prefitores tantummode lane didarum macularum termini, fed aquibilors; nec rugis, aux afperitables interrupei. Lucidior vero pars maximé propé maculas eminet; ade ot; ve, ex en quantarum priman. A fai infa firme focunda circa maculan quandam, fuperiorem, horealem neupei Lung plagm occupanet valde atoliantur tam fuprai lana, quaim infra ingense quarda eminentia, yeutia ropotite prefeterua (delonationes).



Hac

RECENS HABITAE. IT Vnum quoque obliuioni minimè tradam, quod no nifi aliqua cum admiratione adnotaui : medium quafi Lung locum à cauitate quadam occupatum effe reliquis omnibus maiori, ac figura perfectæ rotunditatis; hanc prope quadraturas ambas conspexi candemque in fecundis supra positis figuris quantum licuit imitatus fum. Eundem quo ad obumbrationem, & illuminationem facit aspectum, ac faceret in terris regio confimilis Boemia, fi montibus altifilmis, inque periphæriam perfecti circuli difpofitis occluderetur vndique : in Luna enim adeò elatis iugis vallatur . vt extrema hora tenebrofæ Lunæ parti contermina Solis lumine perfula ípectetur, priufquåm lucis vmbræque terminus ad mediam ipfus figuræ diamerum pertingat . De more autem reliquarum macularum, ymbrofa illius pars Solem respicit, luminosa verò versus te-nebras Luna: constituitur; quod terrio libenter obseruandum admoneo, tanquam firmissimum argumen-tum, asperitatum, inæqualitatumque per totam Lunæ clatiorem plagam dilperfarum; quarum quidem mæcularum femper nigtiores funtillæ, quæ confinio luminis, & tenebrarum conterminæ funt; remotiores verò tum minores, tum obscura minus apparent, ita vt tandem cum Luna in oppofitione totum impleue-rit orbem, modico, admodumque tenui diferimine, cauitatum opacitas ab eminentiarum candore difere-

per. Hac que recentulmus in clarioribus Luna regionibus oblernanur, verum in magnis maculis talis do conficitur Learnarium, eminentiaraménie differentia, al obmutationem figurarum ce als arbye alis iluninationer ardiorum Solis , portur multiplei pofina. Lunam refpicit, atin magnis maculis estituna quidem urola



Hec cadem nácila ante feondam quádrituram misionibus quilidam terminis circumulitat conjúcius ; qui caquam hifimat montum lug ece parte Soli aveta oblicariose sapartas, quiar veo Solem reficient lucidores extants; causo oppofium in cauitatibus accidir, quiura pars Soli averte Solito ita eft. Immunut acineta luminota lupertióe, cum primum tora fermé dida macula tenebris eftoduchas, clariora mótum order deminetre trenbras fendantes. Hané duplicem apparentam fequentes figurar commoltant.

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Galileo's drawings of the Moon obtained during the first observations of our satellite through a telescope. These observations showed an imperfect lunar surface, with chains of mountains and deep valleys, peppered with craters. They were published by Galileo in 1610 in Sidereus Nuncius.

Credits: digital version of Sidereus Nuncius by INAF - OABr



MARCH MON TUE WED THU FRI SAT **SUN** 3 • 10 • 17 • 20 21 25 • 26

March 20 03:06 UTC Vernal equinox

M42 is a region of dust and gas situated south of Orion's Belt at a distance of 1.300 light-years. It is the nearest star formation area to Earth and one of the brightest nebulae in the night sky. At the Roque de Los Muchachos Observatory with a professional digital camera and a 1h exposure you can obtain pictures like this one.

Photo by M. Pedani

NEBVLOSA ORIONIS.



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Galileo's drawings of the Orion Nebula published in Sidereus Nuncius. During his observation in February 1617, Galileo detected for the first time three of the four stars of the Orion Trapezium Cluster, a tight open cluster in the heart of the Orion Nebula.

Credits: digital version of Sidereus Nuncius by INAF - OABr



MAY 2024 MON TUE WED THU FRI SAT **SUN** 1 • 2 3 4 5 6 7 10 12 9 11 8 13 14 15 • 16 17 18 19 23 • 24 20 21 22 25 26 30 • 31 27 28 29

May 1: International Workers' Day

The Pleiades cluster is among the nearest star clusters at a distance of about 444 light-years from Earth and it is located in the constellation Taurus. The cluster is dominated by hot blue luminous stars immersed in a reflection nebula, formed within the last 100 million years.

This picture was obtained with a 1h exposure from the Roque de Los Muchachos with a Canon 5D.

Photo by M. Pedani

JUNE 2024

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Ø June 20 20:51 UTC Summer solstice

A sketch showing the Pleiades published by Galileo in Sidereus Nuncius. The six brightest stars are visible to the naked eye. Between them Galileo counted several fainter ones, recording the positions of 36 stars in his sketch of the cluster. Thanks to these observations Galileo could suggest that the stars appeared as points of light due to their immense distance from Earth.

Credits: digital version of Sidereus Nuncius by INAF - OABr

PLEIADVM CONSTELLATIO.





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Here FGG's 20th anniversary

On 7 July 2004 the constitution of Fundación Galileo Galilei was signed by INAF President Prof P. Benvenuti. It was a sign of respect, trust and stability for the staff that was working hard to operate and maintain the TNG. FGG is a Spanish non-profit foundation dedicated to support and promote astrophysics research through the operation of the TNG and any other scientific activity worth pursuing. Here a group picture of the staff on the 25th anniversary of TNG first light.

Photo by M. Cecconi



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Galileo's telescope, built between 1609 and 1610 was an improvement of an earlier model by Johannes Lippershey. Even though Galileo did not invent the telescope, he very successfully built one and improved it for astronomical observations. The observations he conducted with it eventually led to the demise of the geocentric Ptolemaic model of the Universe and to the adoption of a heliocentric model. Galileo's telescope was a refracting telescope with a 20x magnification, a convex objective lens, a concave eyepiece in a long tube and a field of view of 15 arcmin.

Credits: Museo Galileo di Firenze



SEPTEMBER 2024

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September 22 12:44 UTC Autumnal equinox

SN 2023ixf is a Type II (core collapse) supernova located in the Pinwheel Galaxy (M101), about 21 million light-years from Earth. It was first observed on 19 May 2023 and it is expected to have left behind either a neutron star or a black hole. This image was obtained with DOLORES at the TNG in the BVR filters.

Credits: TNG



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Galileo observed with the naked eye SN 1604, a Type Ia supernova that appeared in the sky during the night of 9 October 1604 in the constellation Ophiuchus. Galileo published his studies about the "new star" in its treatise titled Dialogo de Cecco di Ronchitti. In the image, Galileo showing his telescope to the Doge and the Venetian Senators (1609).

Credits: Vies des Savants Illustres by Louis Figuier (Paris, 1870). Photo by Oxford Science Archive/Print Collector/Getty Image



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NOVEMBER 2024

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Top: Jupiter and three of its Galilean moons Io, Europa and Ganymede, from left to right, observed on 13 October 2023 in the U filter with DOLORES at the TNG. Credits: L. Di Fabrizio and A. Harutyunyan.

Bottom: An image of Jupiter obtained with an amateur telescope and a digital camera (Panasonic S1H). The finest details can be imaged nowadays with non-professional instruments and an excellent sky like the one available at the Roque de Los Muchachos. Photo by A. Tormena

OBSERVAT. SIDEREAE Ori

* •0 * Stella occidentaliori maior, ambæ tamen valdè con-Stella occidentationi maior, amba: tamen valde con-fpicua, ac fplendida: vtra qua diflabat à loue ferupu. Ipicaes, ac ipiendidae : vira quæ dittapar a Ioue Icrupu-lis primis duobus : tercia quoque Stellala apparere celis primis duobus i tertua quoque orenuta apparere ce-pit hora tertia prius minimè confrecta, que es parere pithora tertia prius minine conlipcda , que exparte oriental louem freè tragédar, estatue admodum e-sigua, Omnes fueron in eadem recha, ée fecundum Ecoparize torganomera coordinate. Die decimaterita primum à me quattor confpecte fuerunt Stellaiz in hac ad touem conflictutione. Eraot fuerum Srellulæ in hac'ad louem contitutione. Erant tres occidentales, & vna orientalis, lineam proximè

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OBSERVAT. SIDEREAE ODSERVAT. SIDEREAE loue diflatat min: 3- occidentalis pariter vna à loue cidans min: 1-1. Orientalis duplo maior apparebat oc-cidentali nec plures aderant quantite duz. Verun acti herite aderant du antite duz. cidentali i nec plures aderant quamitte duz. Verum poli horas quantor, hora nempè proximè quinat, ten-tia se parte orientali energere cepti , que antes, ve opinor cum priori iundu erat, fuitque talis politio.

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RECENS HABITAE 19 Iolimi in boream attolicioatare propringuior Ioli cat omnium minima, religius conclusione matores apo encasa a concentrativa de la concentrativa de la concentrativa encasa de la concentrativa de la concentrativa de la concentrativa encasa de la concentrativa de la concentrativa de la concentrativa encasa de la concentrativa de la concentrativa de la concentrativa encasa de la concentrativa de la concentrativa de la concentrativa encasa de la concentrativa de la concentrativa de la concentrativa de la concentrativa encasa de la concentrativa encasa de la concentrativa encasa de la concentrativa encasa de la concentrativa encasa de la concentrativa de la concent ommum minima, relique conlequence maioresap-parchane; interualla inter fouence tria confequantia parebant, interualla inter louen, se tria contequantia Sydera eran: a qualia omnia, ac duorum minutorum sydera erant a qualta omnia, ac quorum munutorum, at occidentalius aberat à fibi propinquo minuti qua. at occidentatius aoerat a non propinquo minutes qua-tuor. Erant lucida valde, & nihil feintillantia, qualia tuor, erantiaciaa vaide, seemini, kintuijanta, suuaia Gemper tum ante, tum polt apparaerunt, Verum ho-ra feptima tres folummodo aderant Stelle, in hainf-0

** * Occ cemodi cum loue afpectu. Erant nempe in cadem recemoar cum toue alpectu. Erane nempern caterin re-éta ad vinguein , vicinior Ioui , erat admodum exigua, eta ad voguem, vicinior Ioui, erat admodum exigua, ĉe ab illo femota per minuta primatria; ab hae fecunda ee ao uno semota per minuta prima transito nae sectimon dilabar min: vito ; terria verò à fecunda min: pr. 4muanat mini vno i terta vero a tecnuda mini prig-feci 30. Pofi verò aliam horam due Stellole medite tec; 30. Polt verò altam horam duz Steliulæ media adhuc viciniores erant ; aberant enim min: fc: vig 300 Die decimafexta hora prima Stellas iuxta hune ordin

RECENS HABITAE. 90 di medium iam inter louen , de orientalem Stellam locum esquifité occupantem, ita yr talis fuerir confi * * O * * Occ. guratio. Stella infuper nouifiimè confipeêta admodum guratio. Stella inluper nouillime conlpecta admodum exigna fuit veruntamen hora fexta reliquis magnituexigua fute; veruntamen hora texta reuquas magnicu-dine ferè fuit aqualis. Di evigefina hora 1, min: 15 conflitutio confimilis vifa eft. Aderant tres Stellulæ adeo exiguæ, yt viæ .0..

percipi poffent ; à lous, & inter fe non magis difa-bant minuto vno ; incertus eram nunqui ex occiden-te dus, an tres adelfent stellalas. Circa horam fexte duz, an tres adeitent Stelluiz. Circa horam fez-tam hor pacto erant dispolitz. Orientalisenimàtoue . 0"

duplo magis aberat quam antea, nempe min: a. media duplo magus aberat quam antes, nempe min: s. mena occidentais à loue diffabar min: o.fec; 40,a6 occiden-taliori vero min: o.fec; 20.7 andem hora feptimar trea ex occidente vife fuerunt Stellule. Loui proxima abe-.. 0...

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DECEMBER 2024

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December 25: Christmas Day | * December 21 09:21 UTC Winter solstice

These are the notes of the observations of Jupiter made by Galileo over successive nights. His observations revealed four star-like objects in line with it. Galileo inferred that these were moons orbiting Jupiter just like our Moon orbits the Earth. Nowadays they are also known as the Galilean moons.

Credits: digital version of Sidereus Nuncius by INAF - OABr

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Calendar 2024 by TNG-FGG staff: G. Andreuzzi, H. Stoev, J. San Juan Cover photo by A.Ghedina - Digital version at: https://www.tng.iac.es/cal2024/

460 years since

Galileo Galilei 1564-2024

460 years after the birth of Galileo Galilei, we remember the "Father of Modern Science", who taught us the scientific method based on experiments, observations, and measurements. In this calendar, we highlight some of the discoveries that Galileo made by directing his "perspicillum" to the sky.

Our Telescope and our Foundation not only bear the name of Galileo but still pursue his legacy to describe the world we are living in and to investigate the universe with curiosity and precision by using the right tools.

Adriano Ghedina - TNG Director



ITO NAZIONALE

ASTROEISICA

