Thursday, March 24, 2016
POSTER SESSION II: NASA PLANETARY SCIENCE DIVISION FACILITIES
6:00 p.m. Town Center Exhibit Area

A SMALL OBSERVATORY WITH BIG PROJECTS.

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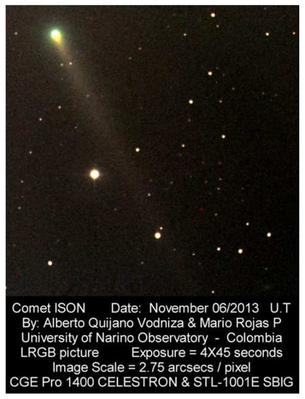
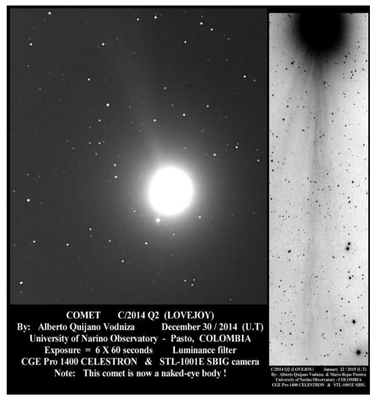
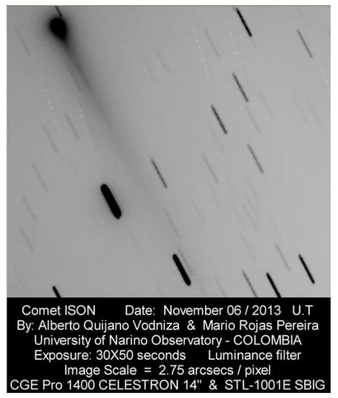
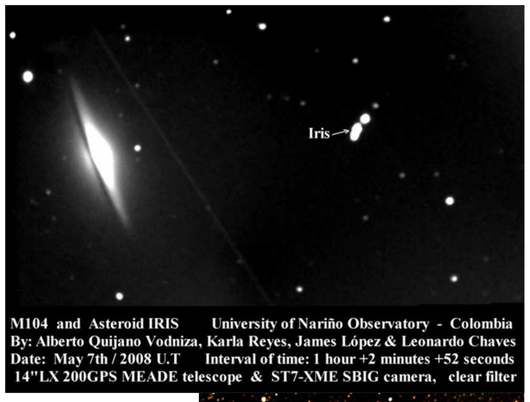
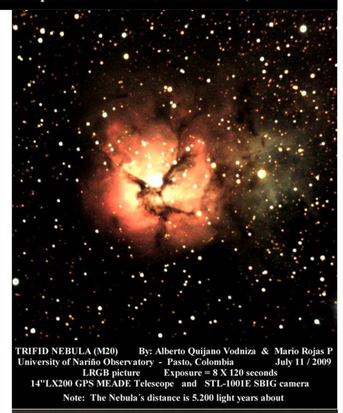

Comet ISON Date: November 06/2013 U.T
By: Alberto Quijano Vodniza & Mario Rojas P
University of Narino Observatory - Colombia
LRGB picture Exposure = 4X45 seconds
Image Scale = 2.75 arcsecs / pixel
CGE Pro 1400 CELESTRON & STL-1001E SBIG


COMET C/2014 Q2 (LOVEJOY)
By: Alberto Quijano Vodniza December 30 / 2014 (U.T)
University of Narino Observatory - Pasto, COLOMBIA
Exposure = 6 X 60 seconds Luminance filter
CGE Pro 1400 CELESTRON & STL-1001E SBIG camera
Note: This comet is now a naked-eye body !


Comet ISON Date: November 06 / 2013 U.T
By: Alberto Quijano Vodniza & Mario Rojas Pereira
University of Narino Observatory - COLOMBIA
Exposure: 30X50 seconds Luminance filter
Image Scale = 2.75 arcsecs / pixel
CGE Pro 1400 CELESTRON 14" & STL-1001E SBIG



M104 and Asteroid IRIS University of Nariño Observatory - Colombia
By: Alberto Quijano Vodniza, Karla Reyes, James López & Leonardo Chaves
Date: May 7th / 2008 U.T Interval of time: 1 hour +2 minutes +52 seconds
14"LX 200GPS MEADE telescope & ST7-XME SBIG camera, clear filter

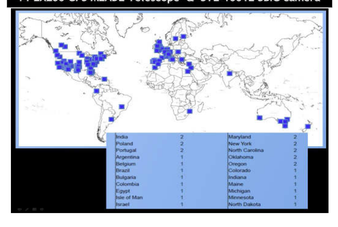

TRIFID NEBULA (M20) By: Alberto Quijano Vodniza & Mario Rojas P
University of Nariño Observatory - Pasto, Colombia July 11 / 2009
LRGB picture Exposure = 8 X 120 seconds
14"LX200 GPS MEADE Telescope and STL-1001E SBIG camera
Note: The Nebula's distance is 5.200 light years about


SN 2014J IN M82 Date: February 02 / 2014 U.T
By: Alberto Quijano Vodniza & Mario Rojas Pereira
University of Narino Observatory - Colombia
CGE Pro 1400 CELESTRON & STL-1001E SBIG camera


M101 By: Alberto Quijano Vodniza & Mario Rojas Pereira
University of Nariño Observatory Date: May 25 / 2009 U.T
Magnitude = 7.92 Distance = 27 millions of light years
Redshift = 241 kilometers / second
14" LX200 GPS MEADE telescope & STL-1001E SBIG camera
Exposure = (20X5 + 2X4) minutes = 108 minutes = 1.8 hours


C/2007 W1 (BOATTINI) University Of Nariño Observatory - Colombia
By: Alberto Quijano Vodniza, James P. López, Karla Reyes & Leonardo Chaves
Date: June 2nd / 2008 U.T RGB Image = 3X20 seconds
14"LX200 GPS MEADE telescope and ST-7XME SBIG camera


HORSEHEAD NEBULA University of Nariño Observatory
By: Alberto Quijano Vodniza, Mario Rojas & Leonardo Chaves
Date: November 21/2009 U.T Pasto, Colombia
Exposure: (18X55 + 7X50 + 1X45) seconds, Luminance filter
14"LX200 GPS MEADE Telescope & STL-1001E SBIG camera



HISTORY

The Astronomical Observatory of the University of Nariño was founded on March 2002 by Alberto Quijano Vodniza (Master's Degree in Physics of the University of Puerto Rico), and built thanks to the immense support given by Dr. Pedro Vicente Obando (Rector of the University of Narino from 1995 to 2004). It has a dome of approximately 4.5 meters of diameter and a capacious auditorium. At this point in time we own the following equipment: A newtonian reflecting telescope Meade f/4 of 16 inches, one CGE Pro 1400 Celestron telescope (equatorial/14"-f/11), a 14 inches Meade robotic telescope LX200GPS, two 8 inches Meade robotic telescopes LX200GPS, a newtonian reflecting telescope Celestron of 8 inches – Dobsonian type, and a Coronado solar telescope. We have several digital cameras and also a digital spectrometer SBIG, a high resolution spectrometer Shelyak and a "Jove" receptor for analyzing the radio signals emitted by Jupiter and the Sun. Electronic Engineering students from the University of Nariño have completed the robotization of the 16'' Meade f/4 telescope. The images obtained are processed through specialized software with the purpose of getting correct photometric and astrometric measurements. The observatory is destined for professors and students' scientific research. At present we have an internal club and we open our doors to all the educational institutions in Narino (Colombia). The Astronomical Observatory's Director is a member of the AMERICAN ASTRONOMICAL SOCIETY since 2007.

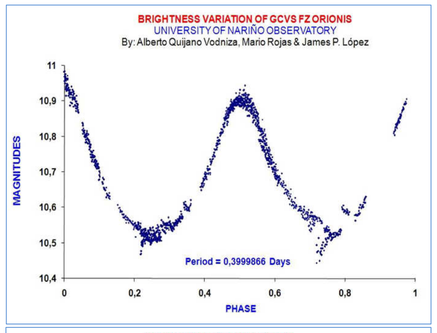
OBSERVATORY´S ACHIEVEMENTS

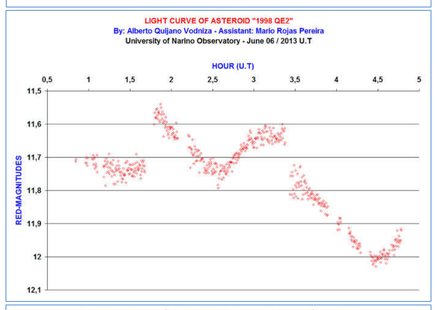
As a result of our research, we have published several books: "Obtaining of the Luminous Curve of Comet Hale-Bopp and Measuring of the Rotation Period Through the CCD Camera"; "Digital Astronomy"; "Design of An Experimental Method for Measuring Stellar Temperatures Through the CCD Camera and Spectrometry"; "Obtaining of the Luminous Curve of the Comets C/2002T7 Linear, C/2001Q4 Neat, and Spectrometry of C/2001 Q4 Neat". We have participated on several international meetings as speakers [1].

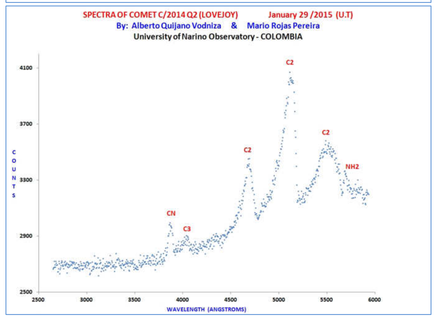
Our Observatory participated in the project "Deep Impact" of *NASA*. The Astronomical Observatory of the University of Nariño took part on the "Small Telescope Science Program", associated program to the project "Deep Impact". As a result of this scientific event, a book was published in Germany. The research we presented in this important meeting in 2006, was published in October 2008 in Germany by the internationally recognized publishing company "Springer-Verlag" on the meeting' namesake book "Deep Impact as a World Observatory Event: Synergies in Space, Time, and Wavelength". Our work appears with the name "The Deep Impact Event As Seen From The University Of Narino Observatory" [2].

Our Astronomical Observatory has also been distinguished for having photographed a lot of Asteroids, many of them supremely weak in brightness. In the year 2008 our Observatory received the international code "H78" from the *MINOR PLANET CENTER* of USA and our data also appears at the web page of NEODyS-2 [3].

One of the most important goals of our Observatory is having actively participated in the project with the Hubble Space Telescope: "Magnetospheric Accretion in Close Pre-Main-Sequence Binaries" [4].







REFERENCES

[1]http://adsabs.harvard.edu/cgi-bin/basic_connect?qsearch=vodniza&version=1
[2]http://link.springer.com/chapter/10.1007%2F978-3-540-76959-0_11
[3]http://newton.dm.unipi.it/neodys/index.php?pc=2.1.2&o=H78&ab=0
[4]http://iopscience.iop.org/article/10.1088/0004-637X/811/2/131/meta;jsessionid=339B3B29A47ED6CFE2349146D69C3315.c5.iopscience.cld.iop.org

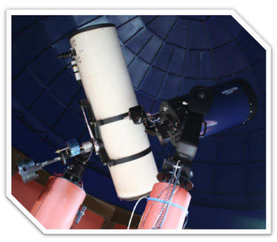
THE ASTEROID "1998 QE2"

AUTHORS : Alberto Q. Vodniza, Mario R. Pereira

INSTITUTION: University of Narino Observatory, PASTO, NARINO, Colombia.
Contributing Teams: Arecibo Observatory,JPL,Target Asteroids Team.

This big asteroid was at 5.8 millions of kilometers from the Earth on May 31 (2013) and it has a diameter of 2.7 km. The radar images obtained by JPL showed that the period of rotation around its axis is close to five hours. Hills. K (2013) reported that the period is of 5.281 +/- 0.002 hours. On June 4 the team of Goldstone-Arecibo found a period of 4.75 +/- 0.01 hours. We also contributed with the light and phase curves to estimate the period by means of the telescope (with red filter). The radar imagery (JPL and Arecibo) revealed that 1998 QE2 has a moon, and we captured a mutual event (eclipse).

From our Observatory, located in Pasto-Colombia, we captured several pictures, videos and astrometry data during several days. Our data was published by the Minor Planet Center (MPC) and also appears at the web page of NEODyS. The pictures of the asteroid were captured with the following equipment: CGE PRO 1400 CELESTRON (f/11 Schmidt-Cassegrain Telescope) and STL-1001 SBIG camera. We obtained the light curve of the body. Astrometry was carried out, and we calculated the orbital elements.



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9	2014LPI....45.1070V Vodniza, A. Q.; Reyes, K. P.; Pereira, M. R.; Lopez, J. P.	50.000 The Comet ISON	03/2014	A F T
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17	2011epsc.conf...40V Vodniza, A. Q.; Rojas, M.; Reyes, K.	50.000 Study of TrES-3 Exoplanet	10/2011	A F T
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Chapter
Deep Impact as a World Observatory Event: Synergies in Space, Time, and Wavelength
Part of the series Eso Astrophysics Symposia pp 87-89

The Deep Impact Event as Seen from the University of Nariño Observatory – Colombia

A. Quijano Vodniza, C. Córdoba Barahona, A. J. Quijano Vodniza, J. Perenguez López, M. Rojas Pereira

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Abstract

The Astronomical Observatory of the University of Nariño has participated in the program STSP (The Small Telescope Science Program), associate to the project DEEP IMPACT of NASA, by sending photographies and scientific data. We began to study comet 9P/Tempel 1's activity in February 2005, and we have obtained the comet's brightnes curve. The great many data taken during every night have a standard deviation of just 0.03 in magnitude. By means of the curve we can compare the physical behavior before and after the impact. A slight change in the magnitude can be observed as the comet gets closer firstly to the Earth and then to the Sun. Nevertheless, we have detected an abrupt change in the luminous activity after the impact that took place at dawn of July 4th. The magnitude dicreased in 0.76 during the night of that same day. The brightness measurements taken after the impact indicate a greater variation with regard to the average value than those taken before the collision. This could indicate that the system nucleus-coma of the comet acquired a certain instability, an instability which lasted several hours.

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MAGNETOSPHERIC ACCRETION IN CLOSE PRE-MAIN-SEQUENCE BINARIES

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ABSTRACT

The transfer of matter between a circumbinary disk and a young binary system remains poorly understood, obscuring the interpretation of accretion indicators. To explore the behavior of these indicators in multiple systems, we have performed the first systematic time-domain study of young binaries in the ultraviolet. We obtained far- and near-ultraviolet *HST*/COS spectra of the young spectroscopic binaries DQ Tau and UZ Tau E. Here we focus on the continuum from 2800 to 3200 Å and on the C IV doublet (λλ1548.19, 1550.77 Å) as accretion diagnostics. Each system was observed over three or four consecutive binary orbits, at phases ~0, 0.2, 0.5, and 0.7. Those observations are complemented by ground-based U-band measurements. Contrary to model predictions, we do not detect any clear correlation between accretion luminosity and phase. Further, we do not detect any correlation between C IV flux and phase. For both stars the appearance of the C IV line is similar to that of single Classical T Tauri Stars (CTTSs), despite the lack of stable long-lived circumstellar disks. However, unlike the case in single CTTSs, the narrow and broad components of the C IV lines are uncorrelated, and we argue that the narrow component is powered by processes other than accretion, such as flares in the stellar magnetospheres and/or enhanced activity in the upper atmosphere. We find that both stars contribute equally to the narrow component C IV flux in DQ Tau, but the primary dominates the narrow component C IV emission in UZ Tau E. The C IV broad component flux is correlated with other accretion indicators, suggesting an accretion origin. However, the line is blueshifted, which is inconsistent with its origin in an infall flow close to the star. It is possible that the complicated geometry of the region, as well as turbulence in the shock region, are responsible for the blueshifted line profiles.

Key words: binaries: spectroscopic – stars: pre-main sequence – stars: variables: T Tauri, Herbig Ae/Be – techniques: spectroscopic – ultraviolet: stars

Supporting material: machine-readable table