

The following is a brief report about ESAOBELA 1915 (TF1-2015D-ESAOBEL). This was the eighth year ESAOBELA was offered and it was dedicated to Rafael Costero Gracia, a Mexican astronomer who has been a frequent observer at the Observatory. The School began on January 11 and ended on January 30, 2015. The program (Appendix 1) describes the classroom activities which were given from 1500-1630 and 1630-1800. The nights were dedicated to observing.

Twelve students had been selected from the 80 candidates who had applied (Appendix 2). The only change from the initial list was the last-minute inclusion of a Mexican student from the state of Morelos.

A list of the professors who taught the afternoon classes (Appendix 3) includes academics from various Mexican universities: The Astronomy Institute of the National University (UNAM), the Instituto Nacional de Astronomía, Óptica, y Electrónica, the Universities of Guanajuato and Guadalajara, and the Ensenada branch of UNAM's Astronomy Institute.

The nocturnal observational practices began with the 1m telescope and Tasco telescopes and rapidly continued on to the two 10" Meade telescopes and a 11" Celestron. The Meade telescopes used CCD cameras and the Celestron used a Nikon camera. Students also worked with a special apparatus created by Dr. Valeri Orlov and, under the supervision of Dr. Lester Fox, worked with a spectrograph.

Photometric observations of SZ Lyn, a HADS, and WUMA were carried out. The WUMA was observed so that students could learn to use a program designed by Dr. Fox to determine the physical parameters of eclipsing stars.

During the course, weekend trips were made to the GTM and to the Astronomy Institute, as well as several visits to local historical and archaeological sites.

The funding from the IAU covered most of the expenses and let us give travel scholarships to four students who had paid their own airfare.

The school was evaluated by the students who considered it satisfactory. The text of the speech given by a student during the closing ceremony is attached (Appendix 4). Our Facebook page (<https://www.facebook.com/OANTNT>) includes photos and information about the school.

In the month of July Jose H. Peña, Arturo Rentería, and Cesar Villarreal, made a visit to the colleagues of the University of Honduras with IAU funds. Five talks were given at the University despite the fact that the university was on strike, and as a result ESAOBELA16 has three Honduran students.

The highlight of the year came in December. The observations of students from ESAOBELA 2012, 2014 and 2015 were included in an article published in the *Information Bulletin on Variable Stars*, No. 6154: *OAN-TNT Results of Observations—Photoelectric Minima of Selected Eclipsing Binaries and Maxima of Pulsating Stars*.

[\[http://www.konkoly.hu/cgi-bin/IBVS?6154\]](http://www.konkoly.hu/cgi-bin/IBVS?6154)

Appendix 1

Program

Escuela Latinoamericana de Astronomía Observacional (2015) "Rafael Costero Gracia"

Actividades Versperinas

	1500-1630			1630-1800	
<b>11</b>	<b>Bienvenida 1800</b>		<b>11</b>		
12	Introducción/ Historia	José H. Pena	12	Tiempo y Arqueoastronomía	Daniel Flores 1700-1800
13	Lyot, Schmidt	Agustin Marques	13	Catalogos, Clasificación Espectral	José H. Pena, Silvana Navarro 17 -1830
14	Fotometría, radios	José H. Pena	14	Placas	Raquel Diaz SaulaTecpanecatI
15	Cúmulos (interiores y evolucion)	José H. Pena	15	Detectores	Arturo Renteria
16	ImageJ-aplicaciones	Arturo Renteria	16	Variables	José H. Pena
17	GTM	Jose H. peña	17	GTM	Jose H. peña
18	Huejotzingo-Cacaxtla-DF		18	To DF	Jose H. peña
19	Bienvenida en el IA	W. Lee 1100	19	Comida y regreso a tnt Posgrado INAOE	
20	Motas	Valeri Orlov	20	Material interestelar	Rafael Costero
21	Surveys	Vahram Chavushyan	21	Modelización Estelar	Emanuele Bertone
22	Asterosismologia	Lester Fox	22	Radiotelescopios	Abraham Luna
23	La Galaxia	Cesar A. Caretta	23	Biología y astronomia	Elcia Brito
24	Cholula 1300-1800	Jose H. Peña	24	Vida extraterrestre	Fernando Angeles 1100-1230
25	Puebla	Josue futuro	25		
26	Manejo de datos y redes	Alfredo Díaz	26	Galaxias, posgrado Gto	Héctor Bravo
27	AGN	Vahram Chavushyan	27	Large Scale Structure	Omar López Cruz
28	Introducc a la cosmología	Omar López Cruz	28	Bancos Datos	Jose Ramon Valdes
29	UV-Espectroscopia	Miguel Chávez	29	UV-Misiones	Miguel Chávez
30	¿materia oscura?	Alejandra Jimenez 1130-1300	30	Entrega constancias	1400

## Appendix 2

### Participants

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## Appendix 3

### Professors

Ángeles, Fernando, Universidad Nacional Autónoma de Mexico  
Bernal, Abel, Universidad Nacional Autónoma de Mexico  
Bertone, Emanuele, Instituto Nacional de Astronomía, Óptica, y Electrónica  
Bravo, Héctor, Universidad de Guanajuato  
Brito, Elcia, Universidad de Guanajuato  
Caretta, Cesar, Universidad de Guanajuato  
Chávez, Miguel, Instituto Nacional de Astronomía, Óptica, y Electrónica  
Chavushyan, Vahram, Instituto Nacional de Astronomía, Óptica, y Electrónica  
Costero, Rafael, Universidad Nacional Autónoma de Mexico  
Díaz, Alfredo, Universidad Nacional Autónoma de Mexico  
Díaz, Raquel, Instituto Nacional de Astronomía, Óptica, y Electrónica  
Flores, Daniel, Universidad Nacional Autónoma de Mexico  
Fox-Machado, Lester, Universidad Nacional Autónoma de Mexico-Ensenada  
Garfias, Fernando, Universidad Nacional Autónoma de Mexico  
Jiménez Alejandra, Universidad Nacional Autónoma de Mexico  
Jorge Guillen, Universidad Nacional Autónoma de Mexico  
López Cruz, Omar, Instituto Nacional de Astronomía, Óptica, y Electrónica  
Luna Abraham, Instituto Nacional de Astronomía, Óptica, y Electrónica  
Marques Agustín, Instituto Nacional de Astronomía, Óptica, y Electrónica  
Mújica Raúl, Instituto Nacional de Astronomía, Óptica, y Electrónica  
Muñoz, Guadalupe, Instituto Politécnico Nacional  
Navarro, Silvana, Universidad de Guadalajara  
Orlov, Valeri, Universidad Nacional Autónoma de Mexico  
Pani, Atanasio, Universidad Nacional Autónoma de Mexico  
Pena, José H., Universidad Nacional Autónoma de Mexico  
Renteria, Arturo, Universidad Nacional Autónoma de Mexico  
Valdés, José Ramón, Instituto Nacional de Astronomía, Óptica, y Electrónica  
Villarreal, Cesar, Universidad Nacional Autónoma de Mexico

## Appendix 4

### Text of Closing Speech Given by Sandra Alvarenga, El Salvador

Santa María Tontantzintla, 30 de enero de 2015.

Discurso de agradecimiento

Primeramente quiero agradecer en nombre de todos los estudiantes de esta escuela al Instituto de Astronomía de la UNAM (IA-UNAM) y al Instituto Nacional de Astronomía, Óptica y Electrónica (INAOE) a través de los profesores José Peña y Raúl Mújica por darnos la oportunidad de asistir a este evento. Así mismo agradecemos al staff por brindarnos su ayuda y conocimientos; desde lo más profundo de nuestros corazones les agradecemos, ya que la física en general y la astronomía tienen un lamentable atraso en nuestros respectivos países, y es verdaderamente frustrante cuando uno como estudiante muestra interés y pasión por la astronomía y no tiene el apoyo para convertir de este gusto una profesión.

Nos comprometemos a compartir el conocimiento que adquirimos, a ampliarlo y mostrarles en un futuro cercano que las semillas que han sembrado en estas tres semanas darán sus frutos.

Queremos además extender nuestros agradecimientos a los ponentes que se tomaron el tiempo de compartir sus valiosos conocimientos con nosotros, ustedes nos han motivado a estudiar con más esmero la astronomía y a seguir siempre adelante.

Finalmente, estamos agradecidos por los lazos de amistad y fraternidad que hemos creado, los cuales sentarán las bases de una comunidad de astrofísicos que estaremos a la vanguardia del desarrollo astronómico en nuestros respectivos países.

Este no es el fin, sino el inicio. Gracias totales.

#### Translation:

Santa Maria Tonantzintla, 3 January, 2015

Closing Speech of Thanks

First, in the names of all the students of this school, I would like to thank the Instituto de Astronomia of the UNAM (IA-UNAM) and the Instituto Nacional de Astronomía, Óptica y Electrónica (INAOE) through Prof. Jose Pena and Raul Mujica gave us the opportunity to attend this event. We would also like to thank the staff for their help and for sharing their knowledge; from the depth of our hearts we thank them, since both physics and astronomy are sadly out-of-date in our countries and it is truly frustrating when a student shows interest and passion for astronomy and has no help to convert this interest into a profession.

We promise to share the knowledge we have acquired, to widen it and to show you in the near future that the seeds you have sown during these three weeks will give fruit.

We also want to extend our thanks to the professors who took time to share their valued knowledge with us. You have motivate us to study astronomy more deeply and the always move ahead.

Finally, we are thankful for the links of friendship and brotherhood we have created which will build the foundations of a community of astrophysicists in our homelands.

This is not the end, but rather the beginning. Thank you.