



Engineering & Astrophysics

**Engineering applied to the design, construction and automation of
Astronomical Observatories**

-2023-

Astronomical Observatories“End to end”

- 1. Study and characterization of the place(Site Testing)**
- 2. Elaboration of own designs and projects**
- 3. Civil Works and Facilities**
- 4. Installation of optical equipment and automation**
- 5. Facility maintenance**

Projects

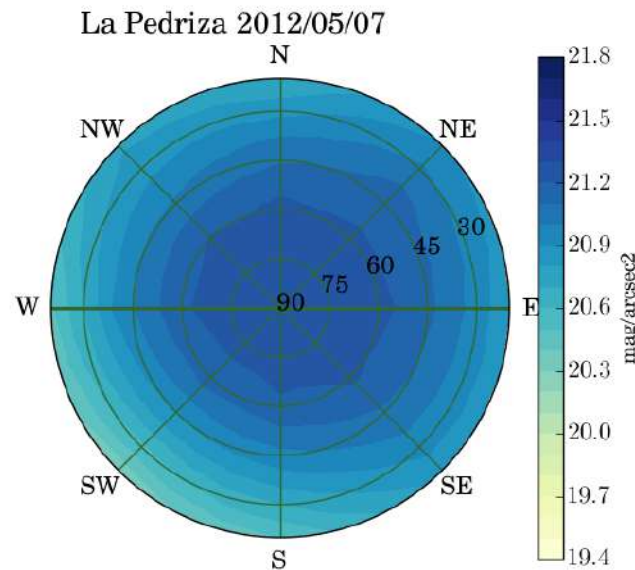
Our products

Sundials

1.- Study and characterization of the place(Site-Testing)

Provide site suitability information

- Seeing
- Climatology
- Sky brightness quality
- Light pollution
- Environmental pollution
- Logistics
- Geopolitical factors



Paraje	Localidad	C.P.	Provincia	Coordenadas Geográficas		Altura		
La pedriza	Alcalá la Real	23680	Jaén	37°24'54"N	3°57'12"O	1026		
Dia	Mes	Año	Hora (T.U.)	Temp(°C)	Orientación	Angulo(°)	mags/arcsec2	mags/arcsec2
7	5	2012	22:00	17°C		90	21.28	
					N	80	21.28	
					NE	80	21.27	
					E	80	21.27	
					SE	80	21.27	
					S	80	21.25	
					SW	80	21.25	
					W	80	21.28	
					NW	80	21.30	
Sin Luna			22:10	17°C				
					N	60	21.24	
					NE	60	21.22	
					E	60	21.24	
					SE	60	21.22	
					S	60	21.19	
					SW	60	21.16	
					W	60	21.19	
					NW	60	21.22	
			22:21	15°C				
					N	40	21.04	
					NE	40	21.13	
					E	40	21.08	
					SE	40	21.04	
					S	40	20.89	
					SW	40	20.81	
					W	40	20.93	
					NW	40	20.95	
			22:34	14°C				
					N	20	20.69	
					NE	20	20.91	
					E	20	20.82	
					SE	20	20.84	
					S	20	20.50	
					SW	20	20.32	
					W	20	20.48	
					NW	20	20.78	

Mediciones realizadas por: Francisco A Espartero Briceño, Juan Alfredo Luque Sanchez
y Francisco Simón Montes Moya

Medición de Brillo de fondo de cielo realizada con fotómetro proporcionado por la
Sociedad Española de Astronomía (SEA) para el proyecto NIX-NOX

Fotómetro SQM-L (Sky Quality Meter)

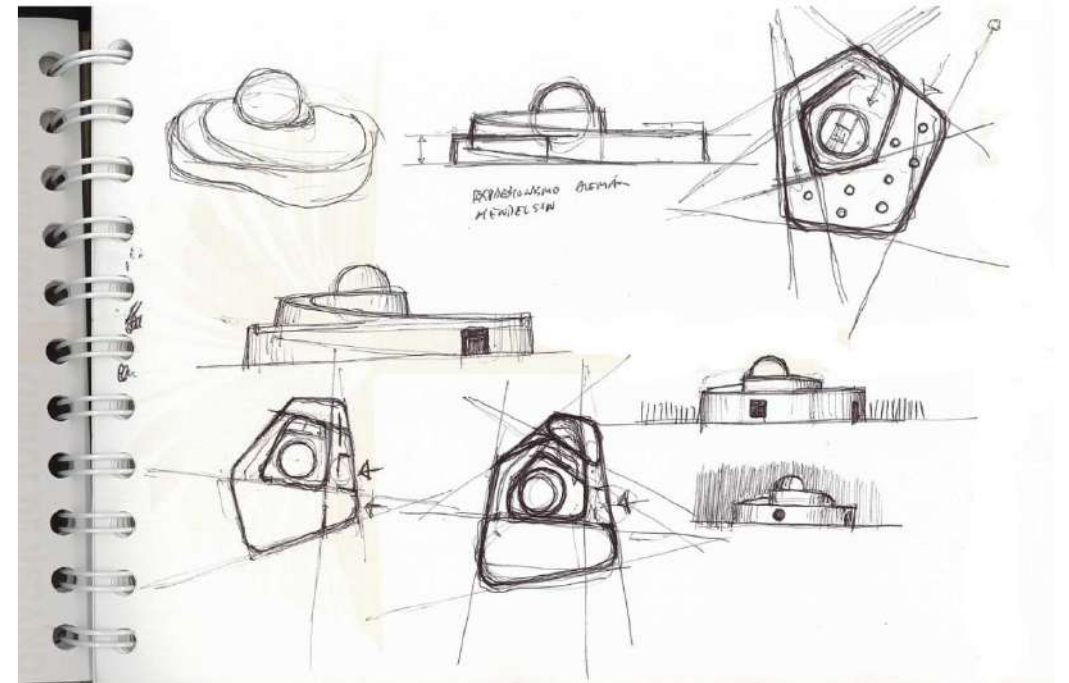
3

Brillo de fondo de cielo expresado en mags/arcsec

2.- Elaboration of own designs and projects

Elaboration of ideas and new projects

- Development of projects (Architecture and Engineering) and environmental impact study.
- Processing of Licenses and Permits
- Particular solutions depending on the requirements and tastes of the client
- Consideration of Applications and Objectives: Scientific, informative, tourist,...
- Experience in the amateur and professional field
- Original and customized projects



3.- Civil Works and Facilities

Execution of all phases of construction

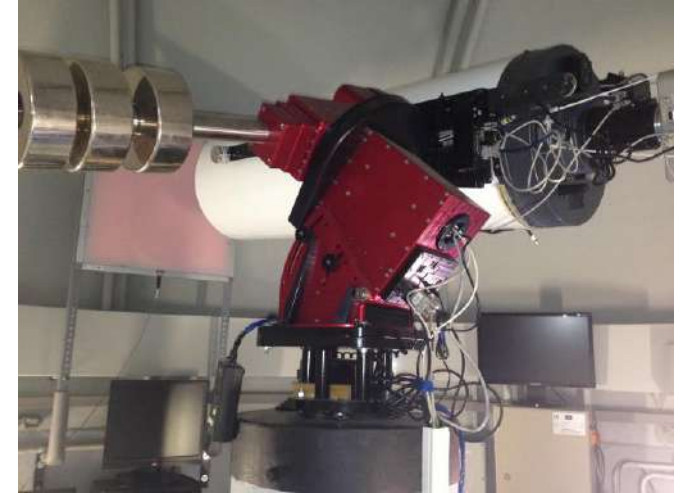
- Optional management of the project
- Health and safety coordination
- Foundation, slabs and structures
- Plumbing
- Power grid, data and telecommunications
- Metal carpentry and Wood
- Isolates
- Accessibility



4.- Installation of optical equipment and automation

Supply and installation in observatories. Automation

- Supply of optical equipment, frames, etc.
- Installations
- Installation of the electrical network (connections and internal network)
- Data Network, Internet
- Supply and Installation of PCs
- Installation of control software
- Automation telescopes and dome



5.- Facility maintenance

Predictive and corrective preventive maintenance activities

- Maintenance plans with regular revisions and updates
- Breakdown repair
- Spare parts supplies
- Coordination with manufacturers and suppliers for the resolution of complex incidents



Projects

Monfragüe Astronomical Observatory (Cáceres)

Construction of an observatory in an old building

- ✓ Reform on existing Building
- ✓ Installation of 4mt dome on unidirectional slab
- ✓ Independent pillar and installation of S/C 10" telescope
- ✓ Weather station



Zuheros Astronomical Observatory (Córdoba)

Observatory installation and dome

- ✓ Ground leveling and foundation slab
- ✓ Installation of dome of 4 m. in diameter
- ✓ Construction of the pillar and installation of an equatorial wedge
- ✓ Supply installation and commissioning
- ✓ Electrical installation and data



Observatory IES Alcarràs (Lleida)

Construction of a small observatory on the roof of an existing building

- ✓ Adaptation of reticular slab for observatory
- ✓ Base construction and protections of the observatory
- ✓ Dome installation of 3 meters.
- ✓ Reform access to roof terrace with folding scale



Installation telescope, mount and commissioning

- ✓ Installation mount ME II
- ✓ Installation telescope S/C 16"
- ✓ Adjustments and commissioning



Sierra Nevada Observatory T60 (Bootes 4)

Repair observatory and Telescope 24" (IR).

- ✓ Mechanical and electronic repair of the control and guidance systems of the T60.
- ✓ Placement of safety barriers, scales and lifeline for maintenance operations at the observatory.
- ✓ Elimination of leaks. Watertightness.
- ✓ Interior adaptation and electrical installations / regulations for commissioning of the observatory and T60.



Observatorio Andaluz de Astronomía (Jaén)

Installation Telescope 60 cm. and automation dome

- ✓ Technical Project and and Civil Works
- ✓ Building and installation
- ✓ Supply and placement of dome of 4 meters.
- ✓ Supply and installation telescope R/C 16@ and Paramount ME II
- ✓ Dome and Telescope

Automation



Aula – Observatory C.O.U. (1)

Building and installation

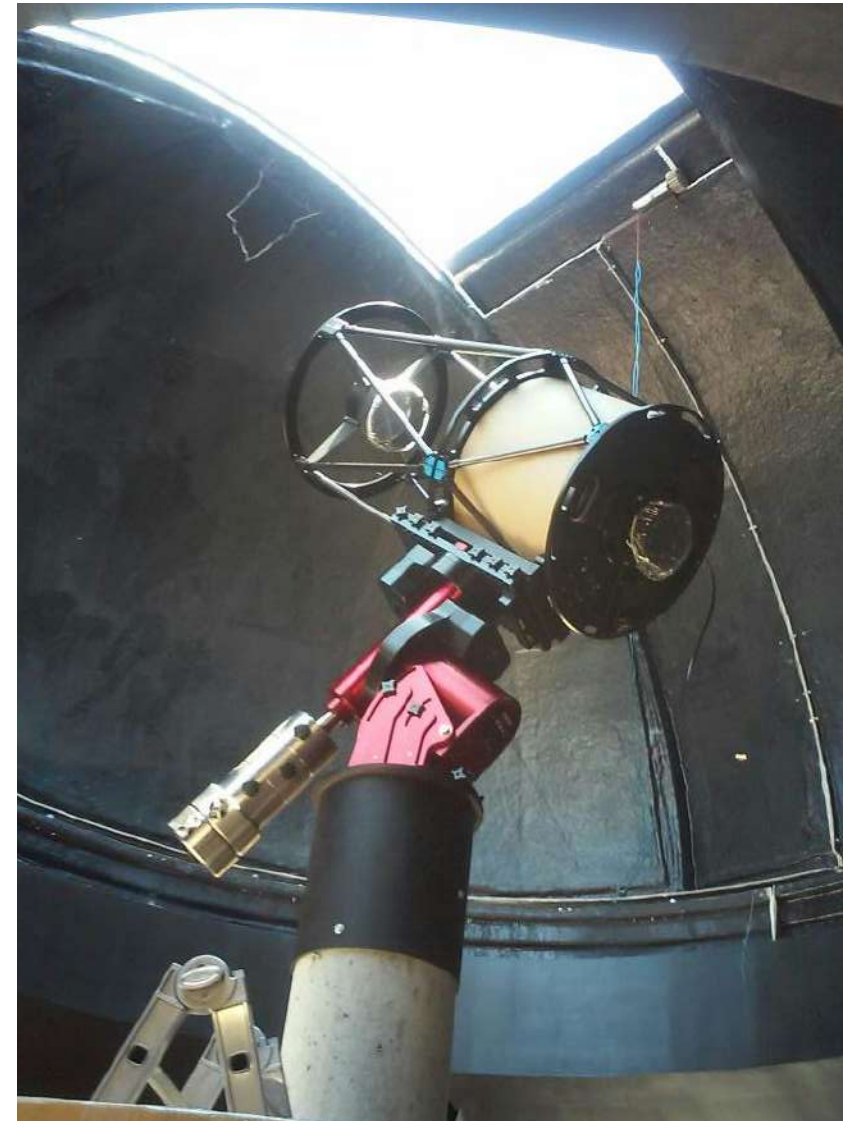
- ✓ Civil works and electrical installation and data
- ✓ Exterior and interior finishes
- ✓ Dome installation of 4.3 m.
- ✓ Installation S/C 20" Telescope and Paramount ME II Mount



Aula – Observatory C.O.U. (2)

Installation and commissioning of dome and telescope. Automation

- ✓ Construction of the first Classroom-Observatory in Europe in the Montsec Astronomical Park (Spain).



Our products

Proam 2 Observatory

Roof Roll-off Automated

- Manual or automatic mode
- Simple and customized installation
- Easy self-installation

(includes packaging and transportation)



- Dimensions: floor 2 x 2 m. Height 2 m.
- Made of sandwich sheet and steel
- Includes installation manual



Proam 2.5 Observatory

- Manual or automatic mode
- Simple and customized installation
- Easy self-installation

(includes packaging and transportation)



- Dimensions: floor 2.5 x 2.5 m. Height 2 m.
- Made of sandwich sheet and steel
- Includes installation manual



Proam Advanced Observatory

Observatory with Robotic Roll-off Roof + Warm room



- Dimensions: floor 6 x 3 m. Height 2 m.
 - Include Warm room (1,5 x 3m)
 - Remote and Robotic Control
 - **Consult shipping conditions**
- (No incl. Assembly & instal.)



Proam Duplo Observatory

Ceiling in Vault Roll-off. Automated

- Automated Sliding Double Roof
- Capacity for two Telescopes
- Solar electric power.
- Dimensions: floor 5 x 3 m. Height 3.5 m.
- **Consult shipping conditions**

(No incl. Assembly & instal.)



Hosting (Observatory)

- Automated Double Roof
- Capacity for two Telescopes
- Dimensions: floor 5 x 4 m (office) + 10 x 4 m (observatory)
Height 2.0 m.
- Capacity for 10 Telescopes (No incl. Assembly & instal.)



Domes

ProAm Dome 3

Observatory with a dome

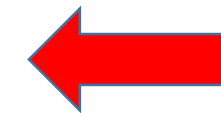
- Steel roof sheet and interior
- **3 / 4 in diameter**
- Robust and highly reliable design
- Black rubber interior finish
- Traction and zipper movements

Consult shipping conditions

(No incl. Assembly & instal.)



ECS
Engineering & Astrophysics



ProAm Dome 4

(Observatory + Warm room + Dome)

- Steel roof sheet and interior
- **3 m in diameter**
- **4 m in diameter**
- Robust and highly reliable design
- Black rubber interior finish
- Traction and zipper movements

Consult shipping conditions

(No incl. Assembly & instal.)



ProAm Dome

Dome for observatories

- Steel roof sheet and interior
 - 3 in diameter
 - 4 m in diameter
 - Robust and highly reliable design
 - Black rubber interior finish
 - Traction and zipper movements.
- Consult shipping conditions**

(No incl. Assembly & instal.)



Pillar / Support

Pier

- Made of structural Steel
- Double leveling plate
- Indoor electrical pre-installation

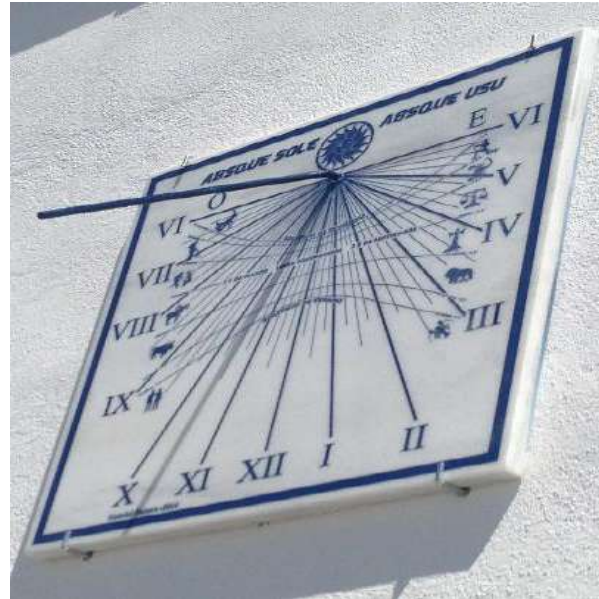
incl. Packaging and
transportation



Sundials

Sundials

- Made of marble, natural stone, steel.....
- Laser engravings. Colors, Latin phrases, logos.....
- Customized for the latitude of the place
- Dimensions of any kind
- Easy to install. Includes manual
(includes packaging and transportation)



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