







## ING ALL-STAFF VIRTUAL MEETING 1 April 2020





# Connecting to this meeting

- From your device connected to internet: click
  - https://ukri.zoom.us/j/3822096947

- From a telephone (audio only):
  - CALL toll-free 900 053 647
    - OR 800 654 404
  - AND enter meeting ID 382 209 6947#



- 1. Marc: Intro
- 2. Chris: Students; Astro.
- 3. Don: Computing
- 4. Diego: T&I
- 5. Juanjo: Admin
- 6. Juerg: Ops
- 7. Don: WEAVE
- 8. Marc: wrap up
- 9. All: Q&A



- All: mics, video OFF
- Speakers: when it's your turn, TURN AUDIO, VIDEO ON. Turn OFF when done.
- Q&A: write into Chat, during presentations.
- Q&A: Javier will organise written questions into blocks, for MG to answer.
- Q&A: verbal questions at end. Switch mic ON to talk. OFF when done.





We have responded well to this most profound alteration to normal living conditions since WW2.

- Thanks for all the positive attitudes
- Goal find way to use time effectively

Focus – being ready for when we go back to normal

- Hard times communication essential
  - Safety network no one gets isolated

Hard times – let's work together and we will prevail





- Responding to rapidly-changing situation
- Safety first! staff and families
- Closed observatory
  - ORM: Monday March 3oth (all telescopes; Residencia)
  - ING: Monday March 16th
    - Close LN2 production, maintain computing infrastructure on
    - Visits 1-2 per week as needed
- Closed ING SLO
  - As of Monday March 30th











# Where we are – working from home

- Coronavirus Coordination Team
  - Cecilia, Chris, Diego, Don, Juanjo, Juerg, Marc, Neil
- Laptops, VPN, zoom to almost everyone (Thanks, IT Group!)
- Page in Confluence with Updates
  - Too much info!? Making access easier.
- Guidelines for working from home
  - Getting organised, at Group level: good.
  - Some individuals have little opportunities for work from home





- Group meetings
  - Zoom, telephone/WhatsApp with colleagues, Group Heads, Reps
- ING staff meetings
  - Every one or two weeks, zoom
- **Training events**
- Student-organised Friday seminars
- STFC, UKRI
  - Weekly staff webinars
  - In.Brief, InfoHub
    - https://staff.stfc.ac.uk/she/Coronavirus
    - https://infohub.ukri.org/keep-up-to-date/coronavirus-information/
- **ING** Confluence intranet
  - https://titania.ing.iac.es:8444/display/ING/Coronavirus+updates
  - News; Forum.





2020 April 1

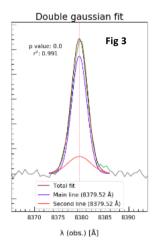


## Macarena García



#### Macarena work

#### PhD - Analysing star-forming regions



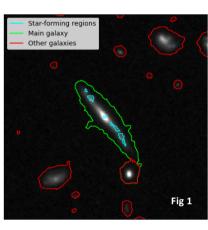
Spectroscopy

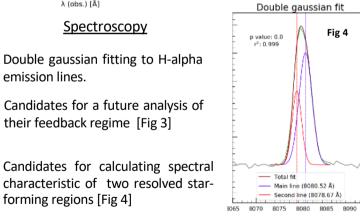
Double gaussian fitting to H-alpha

their feedback regime [Fig 3]

forming regions [Fig 4]

emission lines.





λ (obs.) [Å]

#### Photometry

Disjoin the different emissions (clumps and host) coming from star-forming galaxies [Fig. 1]

SED fitting using CIGALE code applied to the total emission of the galaxy.

Comparison between the clump emission and the estimated young SED contribution (green). Same with the old contribution (red) and the host emission [Fig. 2]

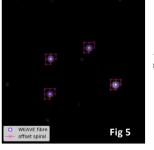
#### WEAVE (commissioning tool)

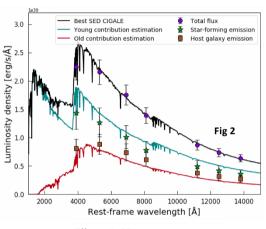
Simulated star field with different seeing values

Measured flux around spiral offsets for different

fibers starting at different points [Fig. 5]

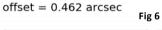
Determine the actual position of the stars and the total offset from the original position of the fiber [Fig. 6]

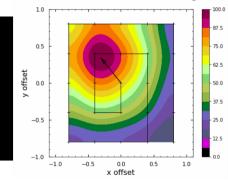
















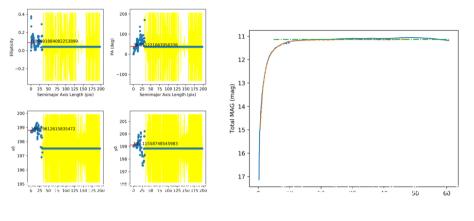
### Python script resuts

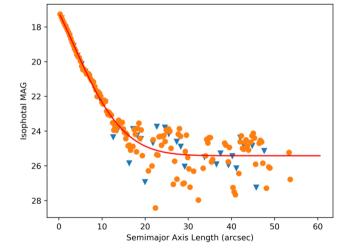
## PHD-Python script

- Simplifing the isophotal analysis method- automatizing the IRAF 4-step method for fitting ellipses on galaxies images
- Analysing the flux values inside the ellipses

# THELI data reduction and documentation

- Reducing WHT observational data
   observed in January –PhD
- Updating the WHT THELI data reduction documentation- project started with Raine







Nick Amos

### Nick Amos

### PhD (Dynamics of Galaxies in Clusters, z~1.4) (Amos et al., in prep):

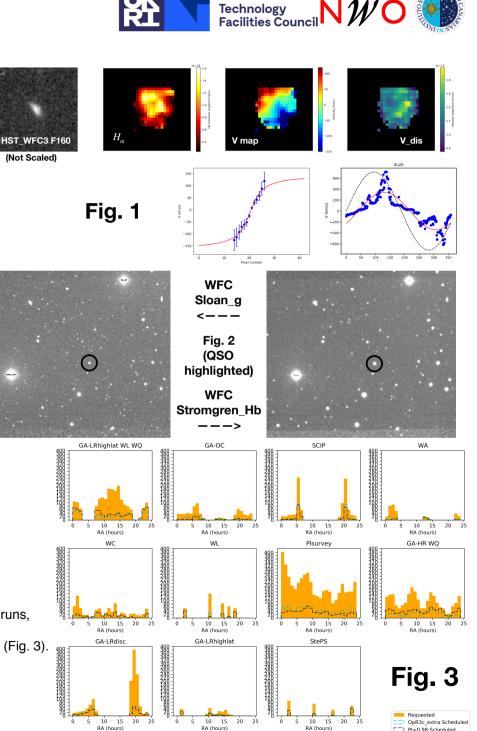
- Currently working on analysing the dynamics of these galaxies (dynamical axis location/orientation and generating 2D velocity models for these galaxies).
- Plot indicates the method I'm currently investigating (Fig. 1).
- Attempting to determine the most reliable way of detecting Vmax.

## PhD (Lyman-alpha emission in cluster galaxies with QSOs, z~3):

- New investigation using D-night data taken with WFC/INT. (Fig. 2)
- Using the narrowband technique outlined in (Geach et al., 2008) to determine which galaxies could be cluster members based on their Lyman-alpha emission.
- Experimental with uncertain outcome made possible by use of INT D-time (thank you!).

### WEAVE (Scheduler):

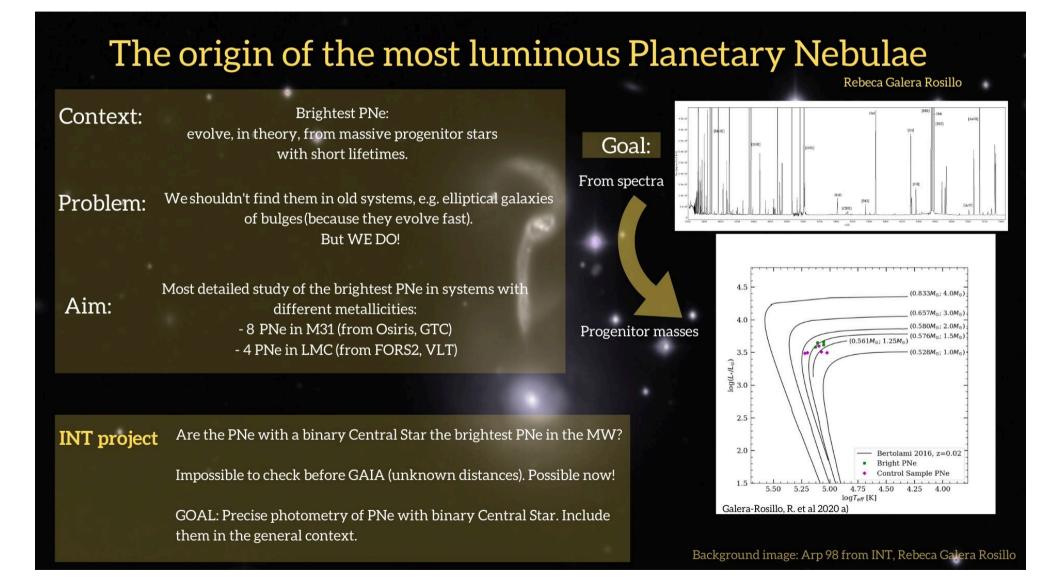
- Weave scheduler simulated runs and analysis.
- Automated runs of scheduler and sequencer.
- Database reset script (hopefully save time at start of new simulated runs, helps if database has been mistakenly modified in large ways).
- Currently analysing and comparing my recent run and OpR3c\_extra (Fig. 3).



Science and

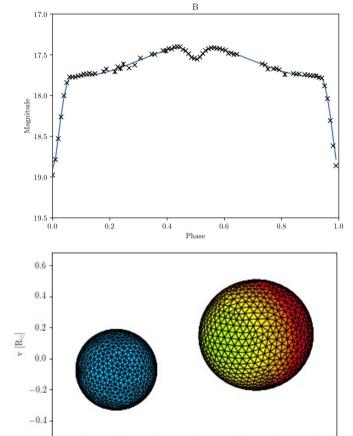












Above: Light curve and temperature map of PNG283

0.25

0.00

0.50

0.75

1.00

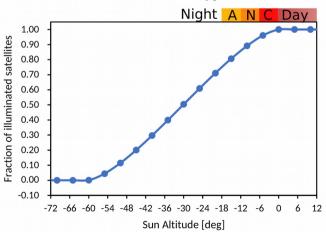
## Tom and Jacob: Binary Star modelling

- Modelling binary central stars of planetary nebulae to determine temp, mass, radii, seperation, etc...
- Running Monte Carlo chains through the Spanish Supercomputing Network (PNG283)
- Extracting light curves from WFC data and radial velocities from OSIRIS data (NGC6778)

## Jacob: Future Satellite Impact

- Investigating the impact of future satellite megaconstellations on WEAVE
- Look into possible mitigation methods

Right: Estimation of the fraction of satellites illuminated by a recent *A&A* paper



-0.50

-0.25











Astronomers: Cecilia, Chris, Ian, Javier, Lilian, Ovidiu, Raine

Optics: Emilie, Neil

Telescope operators: Fiona, Flori, Lara, Lucia, Norberto

Students: Jake, Macarena, Nick, Rebeca, Thomas, Viki

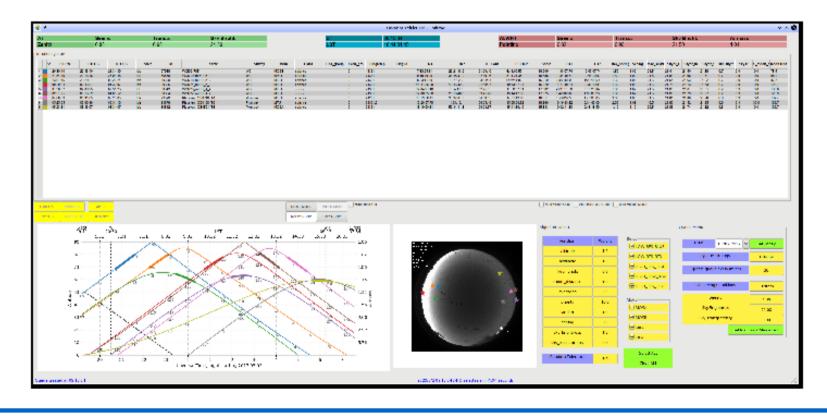




## WEAVE scheduler (Cecilia, Lilian etc)

### Working in WEAVE

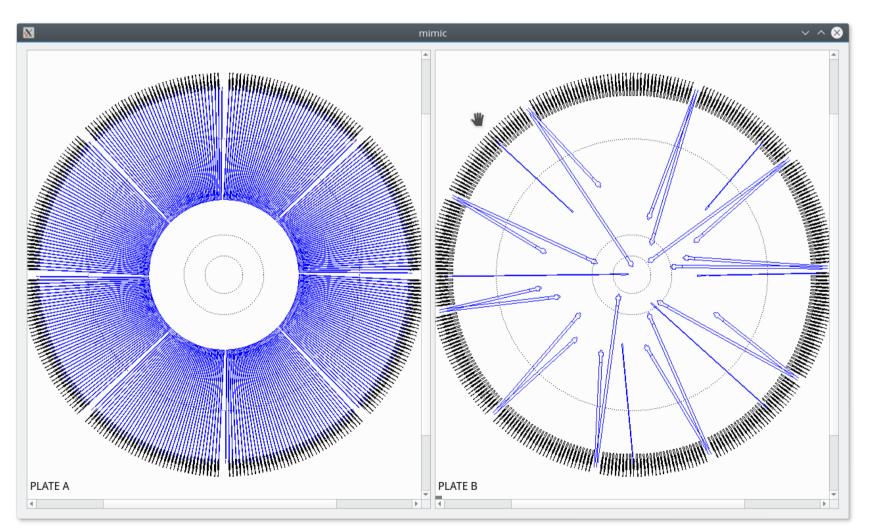
- Writing User Manual for the WEAVE Scheduler
- · With Nick Amos keep on testing the Scheduler algorithm (using data from OpR3c)
- Reviewing WEAVE documentation
- Soon resume checking the Scheduler GUI integrated in the OCS







## Configuring WEAVE fibres (Lilian, software teams)







## WEAVE PF corrector (Emilie, Neil, Lucia, Kevin etc)

WCS-PFC Assembly and Integration at SENER's premises (Barcelona) Last week: mechanical alignment with Laser Tracker









IN an-stan zoon meeting





### PRI AIT/V planning

<b>1. Auto-Guider at bare Prime Focus</b>	<b>2. WCS AIT/V off- telescope</b>	<b>3. PFC/SH on-sky</b>
Work has been documented	Work has been planned	Work has progressed
Mechanics is manufactured	Philosophy is known already	(optical calculations, documentation)
<image/>	<image/>	<image/>





# **Telescope-operator activities (Lucia)**

## Lucía Suárez

### Day-time work

Supporting the optics team:

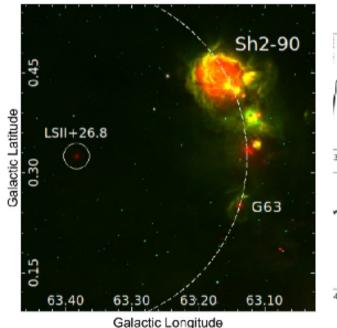
- Supporting AIV WCS Alignment procedure
- PFC+SH Zemax design
- Dustmeter (atmosphere modelling)





### **Finishing science projects**

### Three generations of massive stars: a possible case of sequential star formation



Linking three generations of massive stars -3

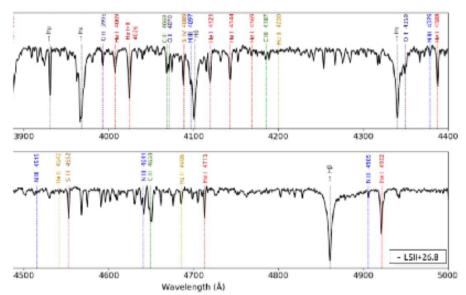
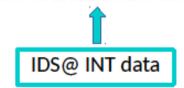


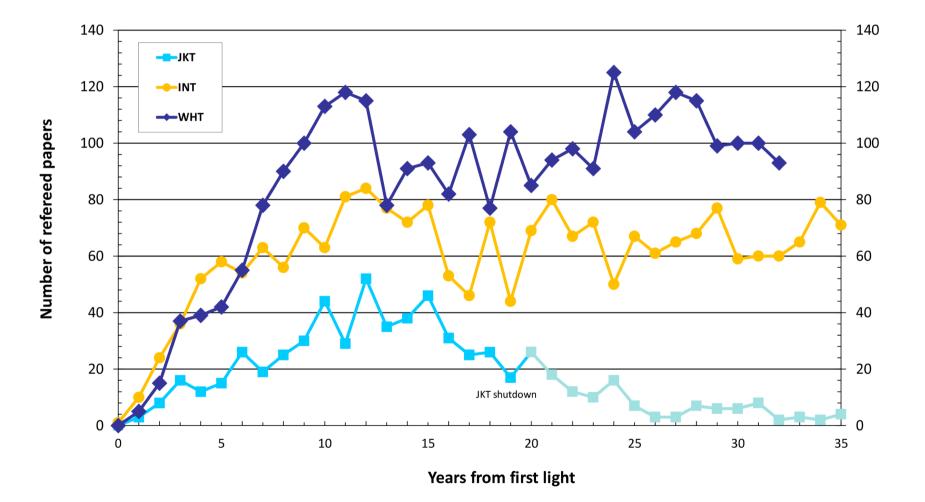
Figure 2. Spectrum of the star LSII+36 8 obtained from the IDS at the Isaac Newton Telescope Figure 1. Three-colour image displaying the GLIMPSF/Spitzer emissions at 8 and 4.5 µm (green and blue, respectively), and the MIPS/Spinger at 24 µm (red). It is remarked that the star LSH+26.8 's located at the geometric center of a semi-shell-like Hit regions complex, composed by Sh2-90 and HRDS G063.137+00.252 (indicated as G63).







## Paper counts from ING (Javier)













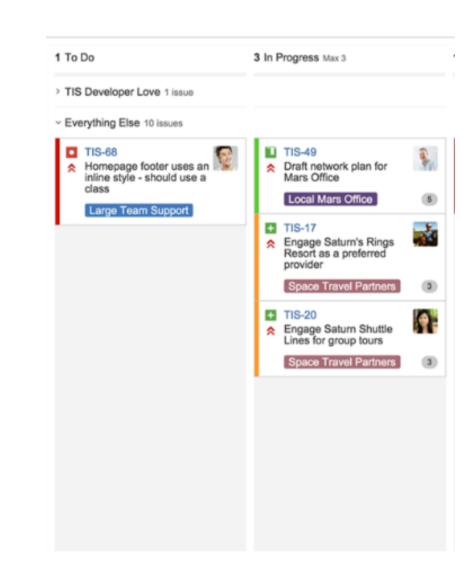
# **ING Computing**

April 2020





- WEAVE
  - VMS control of TCS
  - WRS
  - FTS
  - ADC
  - UltraDAS
  - Tools for testing
  - PCDs and rescheduling
- Weather station
- Software deployment
- Code reviews
- Troubleshooting database



Science and Technology Facilities Council

K





# IT

- Infrastructure support
  - Access to general ING services
  - Atlassian products
  - BSCW
  - Web servers
  - VPN
  - Mail system
  - Antivirus
  - OS security
  - Ancillary systems (FW, DHCP, LDAP)
  - iSCSI servers
- Management of old accounts
- Software licenses
- Computers for individuals
- STFC federal IDs
- Zoom accounts
- Disaster recovery procedures





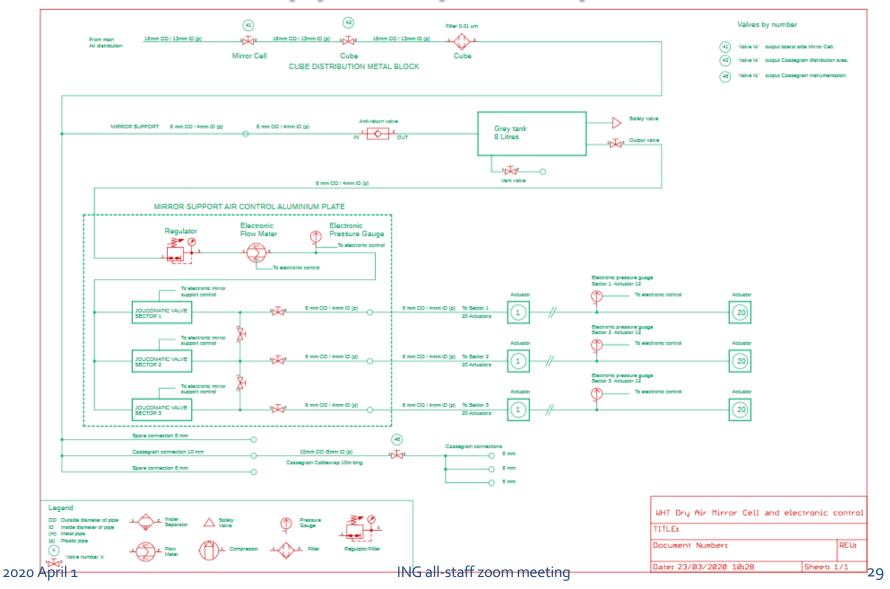






# 1.- Documentation

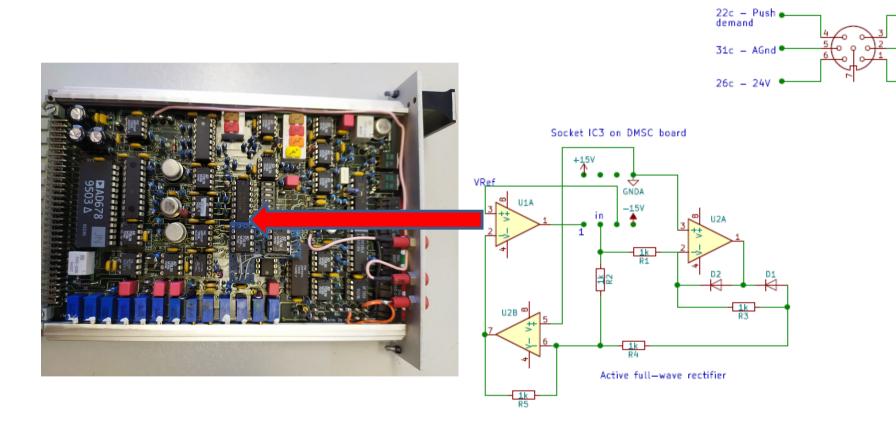
## WHT Mirror support system pneumatics







# WHT Mirror support system electronics



Joucomatic connection to DMSC board:

24c - Gnd

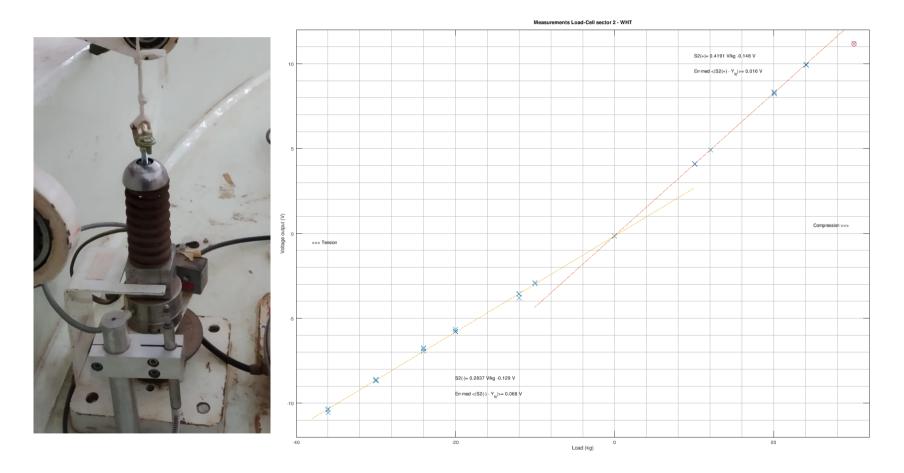
23c – Push pressure

nc.





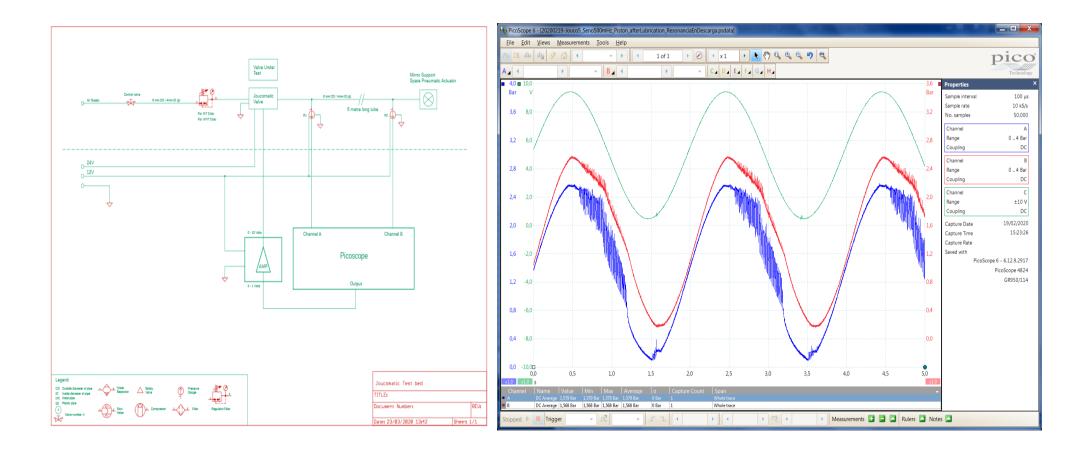
## 3.- Documentation WHT Load cells calibration/analysis







# 4.- Documentation Joucomatic test bench







# Training in house + Searching outside

C:\tmp\kk\Curso_AWK_DevC++\DomeMargins.c - Dev-C++ 5.11			
File Edit Search View Project Execute Tools AStyle Window Help			
	Q Q   = →=   = = = = = = = · · · · · · · · · · ·		
이 성 🔲 🔤 (globals)			
Project Classes Debug DomeMargins.c			
🕀 🍫 RECTA : struct	1 /*	<b>^</b>	
• VECTOR : struct	2 Programa para calcular el margen de desalineamiento de la cúpula del		
AddVect (VECTOR *v, double p, VI	3 WHT, sin que se produzca viñeteo. Esto es posible porque la anchura		
Comblin (VECTOR *v, double p, VE	4 del shutter es 6.395 m, mucho mayor que el diámetro del espejo (4.20 m).	=	
Contacto (double x) : double	5 ( Para la referencia de los algoritmos usados ver doc. del DOME controller )		
Dif(VECTOR *v, VECTOR *a, VECT	6		
Distancia (double alfa) : double	7 Diego Cano Infantes 15-V-18		
Init (double a, double b, double c) :	8 */		
main (int argc, char **argv) : int	10 #include <stdio.h></stdio.h>		
Minimiza (double*px, double delta	11 #include <stdlib.h></stdlib.h>		
Modulo (VECTOR *a) : double	12 #include <math.h></math.h>		
Newton (double *px, double (*fun)	13 #include <string.h></string.h>		
Norma2 (VECTOR *a) : double	14 #include <time.h></time.h>		
Prod (VECTOR *a, VECTOR *b) : de	15		
Uso(char *error, char **argv): vo	<pre>16 typedef struct { double x,y,z; } VECTOR;</pre>		
Vectorial (VECTOR *v, VECTOR *a	17 typedef VECTOR PUNTO; // un punto es conceptualmente diferente pero la estructura es igual		
• • • • • • • • • • • • • • • • • • •	18 typedef struct { PUNTO *p; VECTOR *v; } RECTA;		
alfa: double			
ALT: double	<pre>20 #define Igual(x, y) memcpy(x, y, sizeof(VECTOR)) 21 #define SOB(x)</pre>		
arad: double	<pre>21 #define SQR(x) (x)*(x) 22 #define Set(v, a, b, c) (v)-&gt;x=a; (v)-&gt;y=b; (v)-&gt;z=c</pre>		
D: double	23 watchine Set(V, a, b, c) (V)-72-6, (V)-72-6		
dmo: double	24 /************************************		
dtd: double	25 // Variables globales		
eps: double	26 double pi, arad, adeg;		
• FOVg : double	27 // Parámetros del telescopio y del dome (en m) + Field of view de WEAVE = 2 grados		
•••• •••••••••••••••••••••••••••••••••	28 double D=4.20, Rdext=13.124, Rs, dtd=2.465, dmo=1.75, Sw=6.395, FOVg=2.;		
P: VECTOR*	29		
m > p: vector	30 /************************************		
····· · · · · · · · · · · · · · · · ·	31 VECTOR *Init(double a, double b, double c)		
Rib: double	32 🛛 { // alloca memoria e inicializar vector		
Rid: double	33 VECTOR *v; 34		
Seps: VECTOR*	34 35 v=malloc(sizeof(VECTOR)); // asumimos que hay 3 bytes !		
-	$36 \square if (v==NULL) {$		
Sw: double	37 fprintf(stderr,"Error in malloc for vector initialization\n");		
• <b>tmp</b> : VECTOR*	38 exit(2):	-	
		Þ	
🔠 Compiler 🖷 Resources 🛍 Compile Log 🤣 Debug 🖾 Find Results			
Line: 1 Col: 1 Sel:	0 Lines: 271 I Insert Done parsing in 0,187 seconds	4	







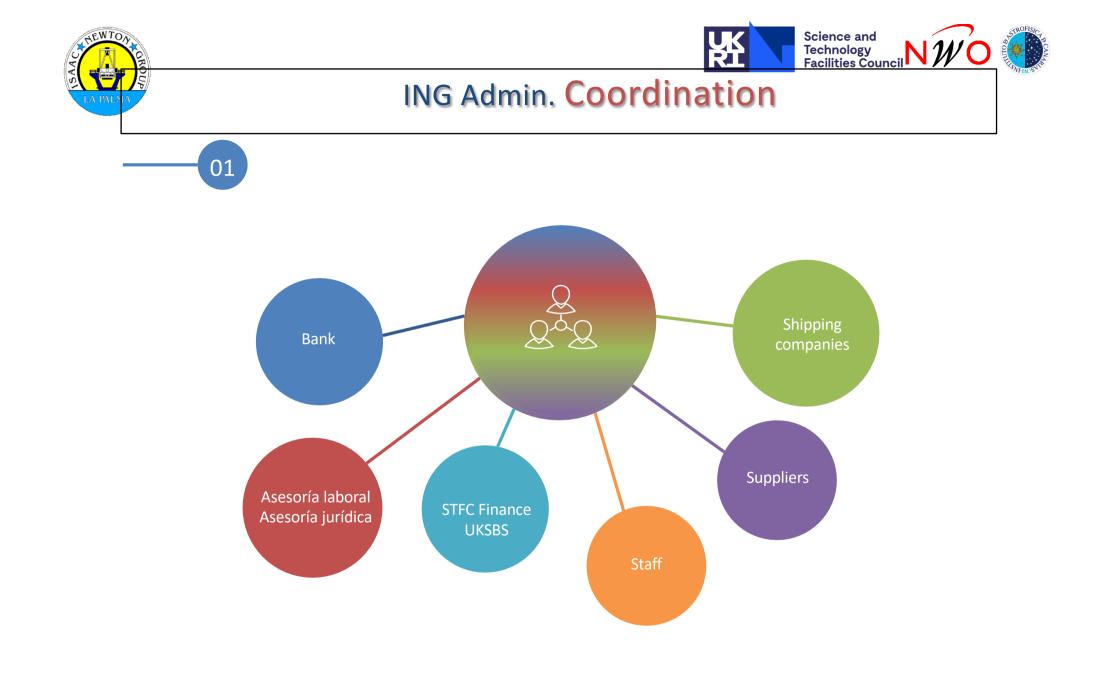
Photo courtesy of the Isaac Newton Group of Telescopes, La Palma

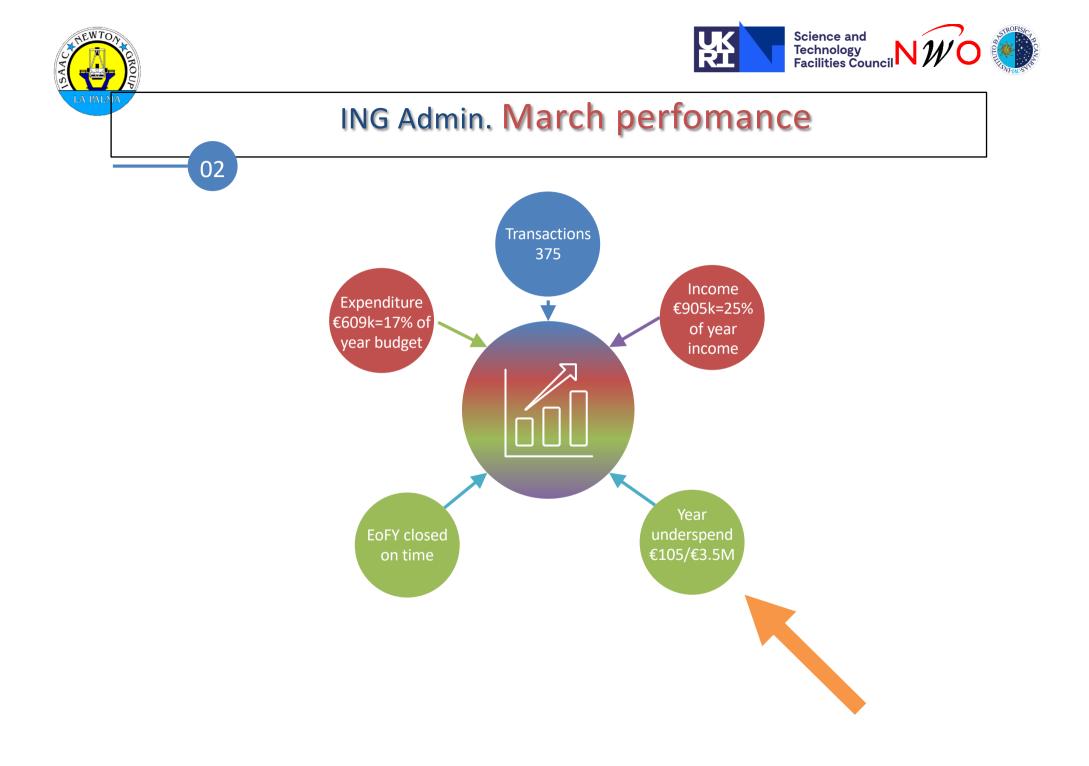
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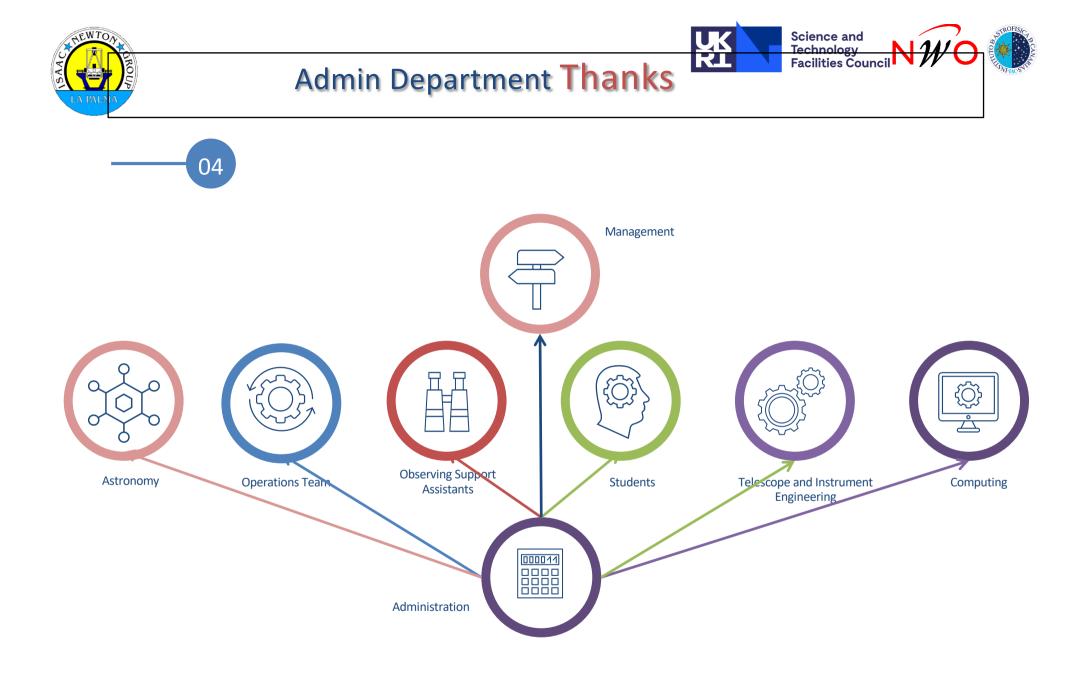






**→** Jira × Confluence













### **Actividades operaciones:**

- Reuniones diarias
- Adquisición material informático
- Entrenamiento informático (Jira, Confluence, Zoom)
- Actualizaciones de tareas Jira
- PWPR
- Compras al final de año financiero
- Cursos (on-line, diagnosis de vehículos, awk con Diego)
- Nuevas pagina 'Operations' en confluence:
   Diagnosis de averías de Vehículos

  - Electricity Supply
     Analizador de red eléctrica
- Intervenciones ORM
  - Cierre
  - Suministro LN<sub>2</sub>
  - Comprobaciones
  - Instalación analizador de red eléctrica
  - Conexión de UPS del INT a la red informática













### Analizador de red eléctrica



🛞 Toma de Datos									-		×
Tensión (V)				Corriente (A)			Total				
V1 237.69	V12 4	1.50		11	18.168	1	Ρ	30.456		k\	W
V2 237.48	V23 411.66			12 40.104			Q	-9.996		k	var
V3 237.87	V31 411.84			13	17.868		S	32.364		k'	VA
VFavg 237.68	VLavg 411.66			IN		PF	-0.941	Fr	50.04		
				lavg 4	45.372	1					
<b>_</b>			I	2				L3			
P 10.956	kW	Ρ	9.084		kW	Ρ	10.	416		kW	
Q -2.988	kvar	Q	-2.628		kvar	Q	-4.:	380		kvar	
S 11.448	kVA	S	9.528		kVA	S	11.	388		kVA	
PF -0.957		PF	-0.953			PF	-0.9	915			
					<u>SA</u>	LIR	/ E2		<u>+</u>		)











#### WEAVE Update and Status

April 2020





#### Latest updates

- <u>Two-degree PFC system</u>
  - FTS
  - WRS
  - WCS
- Fibre Positioner System
- Fibre System
- <u>Spectrograph system</u>
  - Detectors
- <u>Observatory Control System</u>
- <u>Core processing system</u>
- WHT Support Facilities
- Advanced Processing System
- WEAVE Archive System







- Project suspended with some but little progress being made within the systems
- Project delayed (by > six months see <u>this</u>)
- Opportunity for the project to improve documentation and procedures
- Opportunity for ING to revisit specific WEAVE preparation activities









## Looking ahead - Marc





# Looking ahead – returning to normal

We will return to normal – (end April? end June?)

 Our interruption: smaller than for others (Jobs, paychecks maintained; Company does not go bankrupt)

 Asking MG and Group Heads to focus on being ready for the times after return









- Difficult times. Major disruption for all of society, and for ING ambitions for this year.
- Challenges at personal level for many of us
  - Health risk, us + family members
- Things won't be the same afterwards
  - If we work together we will come out stronger
- Impressed by response of our team
  - Thanks to all!





We give power to what we focus on, so keep your eyes on the best!











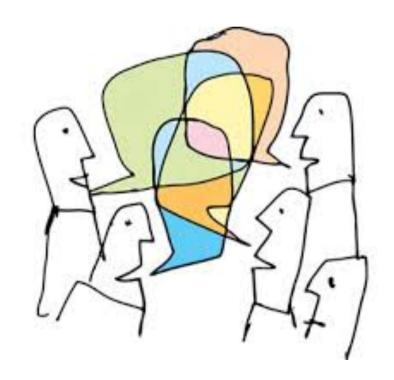




#### If you have questions or suggestions, share them











#### QUESTIONS