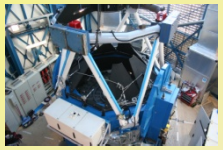
VST Commissioning

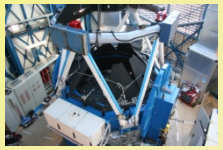
Pietro Schipani

INAF - Capodimonte Astronomical Observatory

In progress: integration + alignment



Commissioning Plan



VST-TRE-OAC-20000-1015

Old Version - FDR:

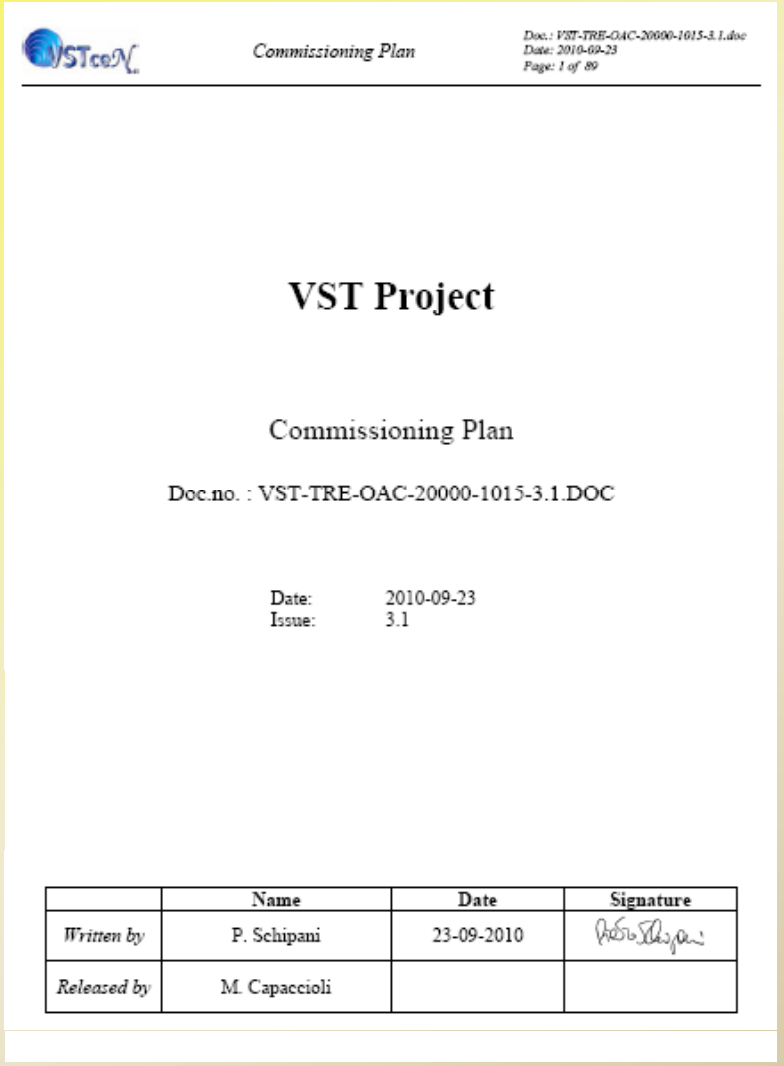
Rel. 2.0, 31/08/2000

Rewritten in 2010:

Rel. 3.0, 04/08/2010

Updated after comments:

Rel. 3.1, 23/09/2010



VSTceN — *Commissioning Plan* — *Doc.: VST-TRE-OAC-20000-1015-3.1.doc Date: 2010-09-23 Page: 1 of 89*

VST Project

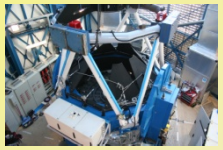
Commissioning Plan

Doc.no. : VST-TRE-OAC-20000-1015-3.1.DOC

Date: 2010-09-23
Issue: 3.1

	Name	Date	Signature
Written by	P. Schipani	23-09-2010	
Released by	M. Capaccioli		

Definition



- "Commissioning":

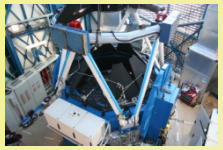
  defined here as the period of time between the end of the integration phase, including the installation and alignment of the mirrors, and the delivery of the telescope to ESO.

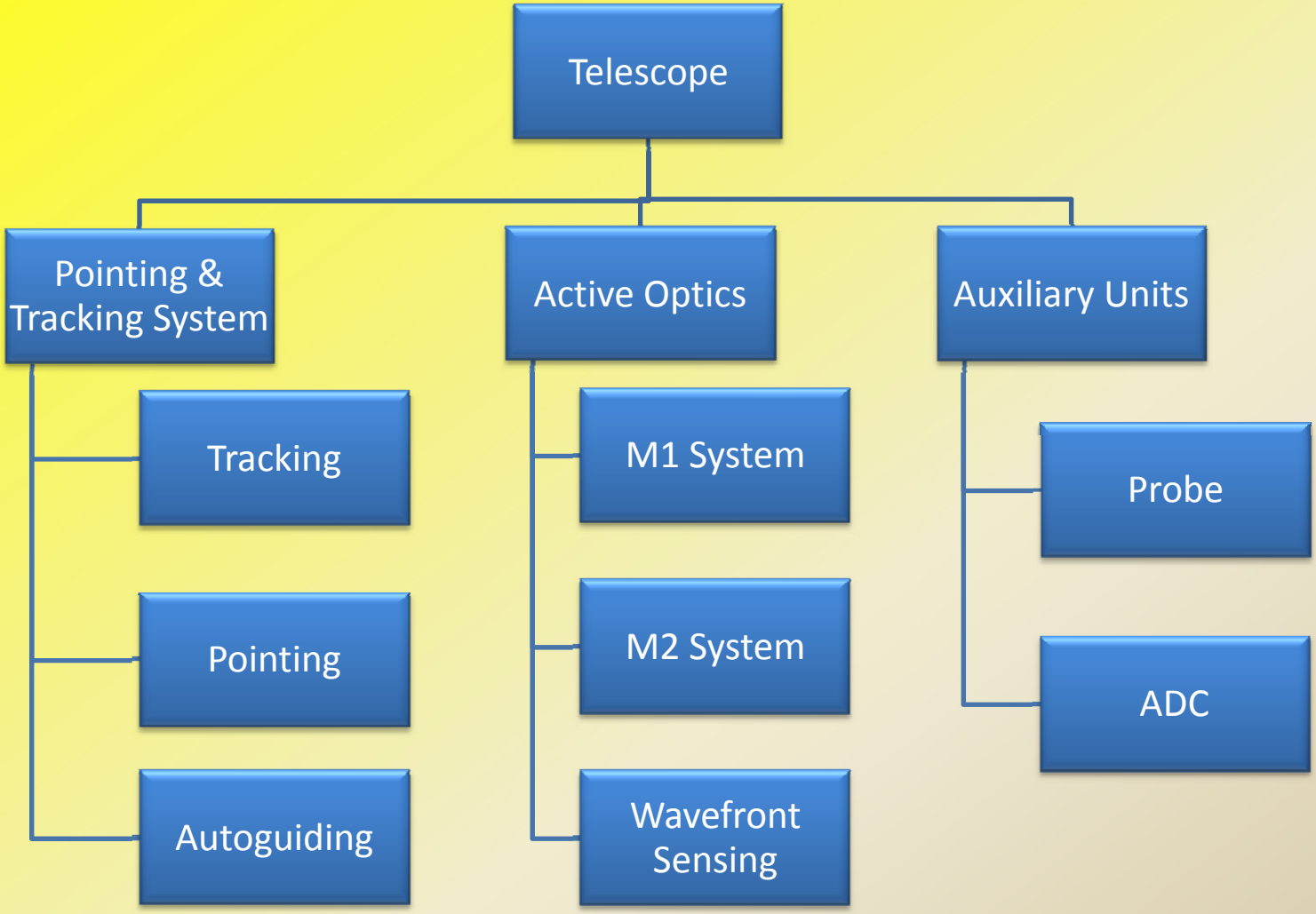
- Prerequisite to start the telescope commissioning:

  the integration is finished and the telescope is reliably operable from the telescope workstation in all its subsystems.

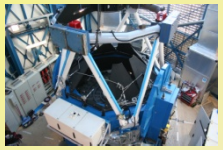
- All tasks requiring mounting/dismounting activities belong to the integration phase; no mounting/dismounting activity is foreseen during commissioning (with the exception of the OmegaCAM installation), unless problems occur.

WBS




Telescope
Pointing & Tracking System
Active Optics
Auxiliary Units
Tracking
Pointing
Autoguiding
M1 System
M2 System
Wavefront Sensing
Probe
ADC

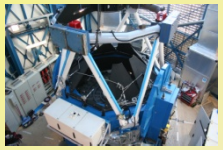
Purpose



Goals of the commissioning:

- to integrate the telescope subsystems at telescope system level
- to tune the single subsystems at their best
- to verify the subsystems performance
- to verify the overall telescope performance

Functional verifications



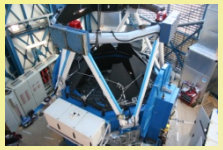
At subsystem level:

- Azimuth axis operation
- Altitude axis operation
- Rotator axis operation
- Primary mirror system operation
- Secondary mirror system operation
- Probe system operation
- AutoGuiding TCCD operation
- Image Analysis TCCD operation
- ADC operation
- Correctors exchange system operation

At system level:

- Preset of tracking axes to object coordinates
- Selection of guide stars
- Active optics basic functionalities
- ADC prisms setting

System Performance 1/3



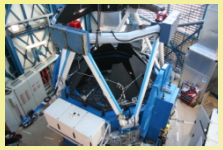
The telescope core subsystems can be tested before the installation of the camera.

1) Tracking system
   - Azimuth
   - Altitude
   - Rotator
   - Autoguiding

2) Active optics system
   - M1 system
   - M2 system
   - Shack-Hartmann system

OmegaCAM not needed

System Performance 2/3

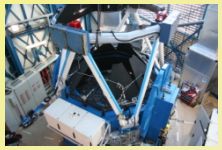


Other assessments needs OmegaCAM (but no pre-requisites on OmegaCAM image analysis and autoguiding systems)

- Atmospheric Dispersion Corrector
- Telescope alignment

OmegaCAM (filters) needed

System Performance 3/3

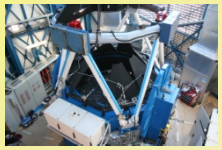


Residual assessments (software interfaces between TCS and ICS) need a fully available OmegaCAM

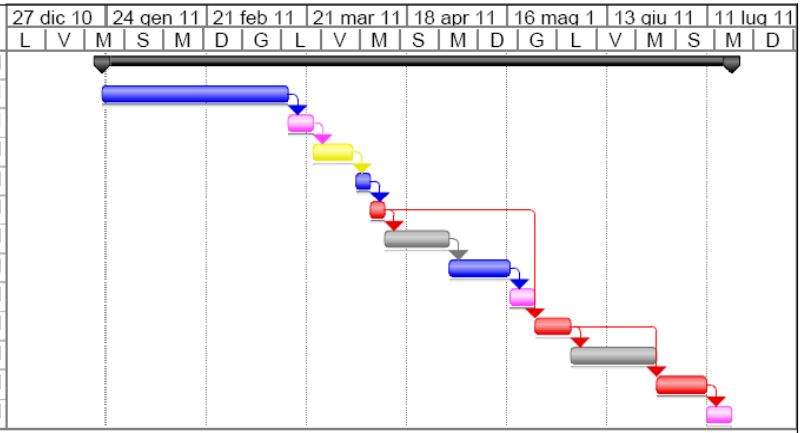
- TCS Interface with OmegaCAM Image Analysis
- TCS Interface with OmegaCAM Autoguiding

OmegaCAM fully needed

Proposed schedule



Nome attività	Durata	Inizio	Fine
VST Commissioning	**176 g**	**dom 23/01/11**	**dom 17/07/11**
VST1A	52 g	dom 23/01/11	mar 15/03/11
ESO Acceptance Tests 1	7 g	mer 16/03/11	mar 22/03/11
OmegaCAM Installation (D)	11 g	mer 23/03/11	sab 02/04/11
VST1B	4 g	lun 04/04/11	gio 07/04/11
OCM1A	4 g	ven 08/04/11	lun 11/04/11
Residual Activities - Problem solving - Realignment (VST1C)	18 g	mar 12/04/11	ven 29/04/11
VST2A	17 g	sab 30/04/11	lun 16/05/11
ESO Acceptance Tests 2	7 g	mar 17/05/11	lun 23/05/11
OCM1B (with spacer inst.)	10 g	mar 24/05/11	gio 02/06/11
Residual Activities - Problem Solving (VST2B)	24 g	ven 03/06/11	dom 26/06/11
OCM2	14 g	lun 27/06/11	dom 10/07/11
ESO Acceptance Tests 3	7 g	lun 11/07/11	dom 17/07/11



To be finally agreed

Next Meeting ESO-VST-OMEGACAM:

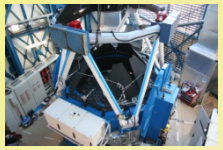
Videocon 30/09/2010

ID	Nome attività	Durata
1	Technical Commissioning	130 g
2	Tracking System	130 g
3	Blind Tracking	60 g
4	AZ / ALT / ROT Tracking Functional Test (D)	1 g
5	Tuning ALT Control Parameters (D)	2 g
6	Tuning AZ Control Parameters (D)	2 g
7	Tuning ROT Control Parameters (D)	2 g
8	Autoguiding TCCD Functional Test (D/N)	2 g
9	Test on Sky with Guiding TCCD (no autoguiding) (N)	2 g
10	Tuning AZ / ALT / ROT Parameters with OmegaCAM (D)	3 g
11	Tuning Corot Parameters with OmegaCAM (D)	3 g
12	Autoguiding System	80 g
13	Adapter/probe functional test (D)	2 g
14	Tuning Probe Position on Sky (N)	2 g
15	Probe Motors look-up table (N)	7 g
16	Autoguiding functional test (N)	5 g
17	Autoguiding Parameters Rough Tuning (N)	2 g
18	Autoguiding Parameters Fine Tuning (N)	2 g
19	Pointing Model	73 g
20	POM 1st Tuning (N)	2 g
21	POM Fine Tuning (N)	2 g
22	Tracking System Contingency	5 g
23	Tracking System Optimization (D/N)	70 g
24	Active Optics	127 g
25	M1/M2 Functional Test (D)	4 g
26	SH TCCD Functional Test (D/N)	2 g
27	Focusing w/o Active Optics (N)	2 g
28	SH functional tests (field center) (N)	4 g
29	SH measurements off-axis (field aberrations) (N)	2 g
30	Tuning SH Aberrations in M1/M2 System Coords (N)	6 g
31	Aberrations correction on sky (N)	4 g
32	Aberrations Look-up Table vs ALT angle (N)	5 g
33	Defocus Variation vs Temperature (N)	5 g
34	AO Complete Test (N)	2 g
35	AO Contingency	3 g
36	AO Optimization (N)	73 g
37	ADC	119 g
38	ADC Selector and Prisms Functional Test (D)	1 g
39	ADC Test on Sky (N)	2 g
40	Verification of prisms angle vs ALT angle (N)	3 g
41	SH Measurements with ADC (N)	3 g
42	ADC Contingency	5 g
43	ADC Optimization (N)	46 g
44	Telescope Control Software	130 g
45	Preset Tuning (D/N)	130 g
46	General Software Tuning (D/N)	130 g
47	VST+OCM System Commissioning	84 g
48	OmegaCAM Installation (D)	11 g
49	OCM1	14 g
50	Image Quality tests & optimization	70 g
51	ESO Preliminary Tests of VST (Trk System, AO corrections)	4 g
52	OCM2	14 g
53	ESO Acceptance Tests of VST + OmegaCAM	14 g
54	Residual Activities from Punch List	14 g

Progetto: vstcommissioning2011
Data: mar 29/06/10

Attività — Avanzamento — Riepilogo — Attività esterne — Scadenza
Divisione — Cardine — Riepilogo progetto — Cardine esterno

Commissioning tools



Reporting

Problem tracking

Software Problem Reporting (SPR) system

Paranal Problem Reporting System (PPRS)

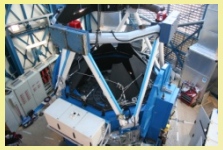
Data archiving

Archiving facility (TBD) to store:

- Data
- Reports

Software Tools (TCS specific modules, Matlab)

Documentation



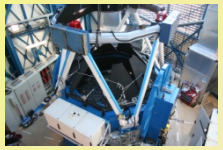
Deliverables, at subsystem level

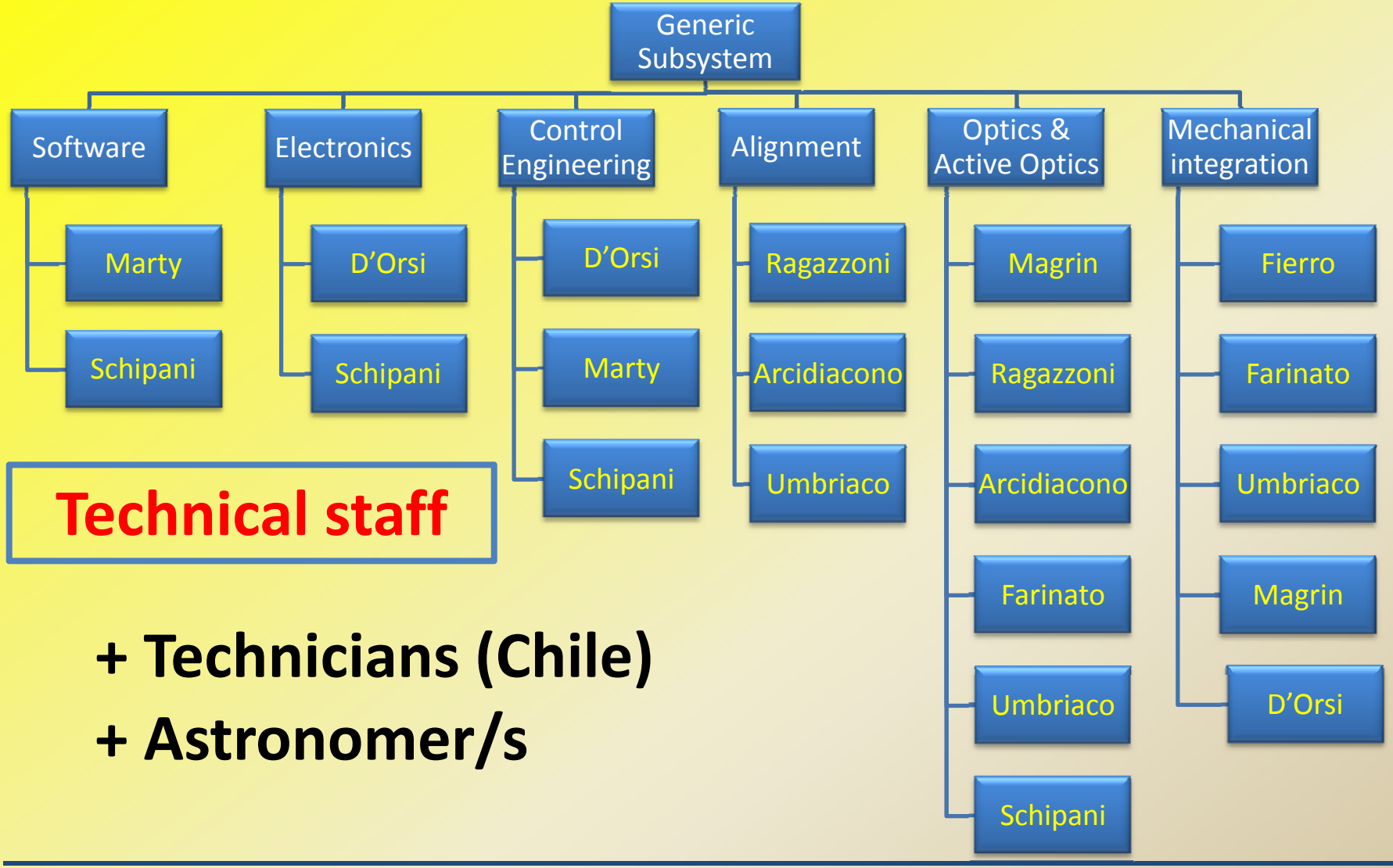
- Subsystem Documentation Set (mechanical and electrical drawings, assembly instructions, etc.)
- Subsystem Operation Manual
- Subsystem Maintenance manual
- Subsystem Test Procedure
- Subsystem Test Report

Deliverables, at telescope system level

- Telescope User Manual
- Telescope Test Procedure
- Telescope Test Report (Commissioning Report)

Commissioning Staff



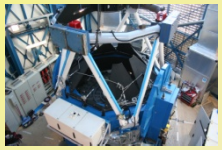


Technical staff

+ Technicians (Chile)

+ Astronomer/s

Commissioning Staff




See you soon for VST commissioning