

New General detector Controller (NGC)

<http://www.eso.org/projects/ngc>

Introduction

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- 1. Purpose of meeting**
- 2. Project history**
- 3. Lessons learned**

Purpose of meeting

- Introduce the product
- Introduce the people
- Trigger feedback from users
- Identify areas requiring attention
- We ask for your understanding that this event cannot be a tutorial on how to use NGC. However:
 - All presentations will be posted at www.eso.org/projects/ngc
 - References to documentation will be provided
 - Please tell us your needs for more information (e.g., by e-mail to NGC@eso.org)

The mission

- **ESO's 2 detector departments (IDD and ODT) are charged with providing the detector systems for all LSP instruments:**
 - Standardization and reliability (LRU's)
 - Expertise with detector systems not as widespread in ESO community as for other areas
- **Common umbrella: detector controller (electronics + S/W)**
 - Provides signals to generate, collect, transport, and measure photo signal
 - Creates and delivers image files
 - Needed for scientific imaging and signal sensing (AO WFS)
- **Detector controllers are among the most complex products designed and manufactured by ESO staff.**

Detector controllers @ ESO

- **NGC precursors at ESO:**
 - ACE (optical)
 - FIERA (optical)
 - IRACE (infra-red)
- **After 17 years of flawless service, ACE retired with EMMI blue**
- **FIERA and IRACE were the first standard controllers at ESO**
- **Very successful: downtime in 10 VLT years ~0.1%!**
(cf. NGC Reliability Analysis VLT-TRE-ESO-13660-4578)
- **But, after ~12 years, both FIERA and IRACE are aging:**
 - more and more obsolete electronics components
 - new detectors have lower noise, are faster and larger, have more outputs, require wider range of voltages, etc.
 - extremely demanding signal-sensing applications (AO WFS)

NGC milestones

- **2002: First idea to replace FIERA and IRACE with one system**
- **2003: First preparatory work**
- **2004: Formal requirements established (VLT-SPE-ESO-13660-3207)**
- **2005: ERP Job created**
- **2006/2007: First laboratory light**
- **2008: First systems being delivered to KMOS, MUSE, SPHERE, ZIMPOL**
- **2008+: All forthcoming VLT and VLTI instruments will use NGC**
- **2009: Special branch of NGC for AO WFS applications**

Lessons learned

(<http://w4/projects/odt/NGClessonslearned.html>)

- Don't miss the opportunity to get valuable advice from project-external reviewers.
- Merging 2 different working cultures is not trivial.
- Merging 2 highly successful teams can be more difficult than any other combination.
- Give project co-ownership to everyone – but don't let everyone own everything.
- We've built (and continue to build) not just a very good controller but also an excellent team.