MAORI

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What is MAORI?

- The indigenous tribal people of New Zealand
- Marcos’ Adaptive Optics Rectangular Interface
But what does it do?

- Graphical User Interface (GUI)
- Used by Observing Assistants and Support Astronomers
- Controls and monitors the status of the Adaptive Optics system of the Keck Telescopes
There are several AO systems involved in running each of the Keck telescopes. These systems have many parameters that need to be readily viewed and easily changed depending on the needs of the astronomer.
Before MAORI

- Several GUIs to control each subsystem of the Keck AO systems
- Very little “real estate”
Goals

- Use Python to create a single GUI that would allow the user to view and control the status of each subsystem.

- Most important goal was to create an interface that was extremely compact, clear and easy to operate.
Key Conditions

User Friendly
Flexible
Easily Maintained
Compatible with Keyword Interface
Fast
Why code in Python?

Keyword Interface Compatible:
Java, IDL, Python

IDL:
- NOT flexible
- REQUIRES License

JAVA:
- REQUIRES a software engineer to modify and maintain

PYTHON:
- simple GUI creation
- flexible
- open source
- easy to modify and maintain
Features

- a very compact design
- logic to configure the GUI based on what telescope and instruments are in use
- the ability to bring up other tools as needed
- uses pop-up warnings to reject invalid entries
- toggle functions for open/close parameters
- charts for plotting one parameter vs. another
Compact Design

- Tabbed interface
- Switch between displays based on needed parameters
- Maximum info is a small space
Self Configuring

LGS

vs.

NGS

- Based on telescope and instruments
- Multiple frames that disappear or reappear
Pop-Up Warnings

- Rejects invalid entries
- Notifies user what values are acceptable
Toggle Functions
Charts

- Plots one parameter vs. another
- Continuously updates with live data
- Traffic light style warning
The Keck Observatory sets aside engineering nights specifically for the purpose of testing new software.

MAORI was tested on two engineering nights.

Observing assistants were asked to test and give feedback on MAORI.

MAORI officially went online the end of July 2006.
MAORI is now being used to operate the telescopes and AO instruments at the W.M. Keck Observatory.

Scheduled to be in operation for the next five to ten years, MAORI will provide the observing assistant with a compact tool for viewing and modifying AO parameters as needed by astronomers observing with the Keck telescopes.
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