The Outrigger Session
The Outrigger Session

**Goals:**

- Refresh everyone on outrigger subsystem
- Give update on hardware installation and progress on calibrations and software development
- Emphasize that the outriggers can provide crucial information to event reconstruction, but only if all necessary tasks are completed.
- Layout what tasks need to be completed to have outriggers supplying useful data which is fully incorporated into our event information
- Produce a plan which will insure that the benefits of the outriggers are obtained ASAP.
The Outrigger Session

Progress has been made:

12/12/02
Status of Outrigger Construction

**Recall layout:**

- 66 inner outriggers on ~ 5 meter spacing around pond inside inner fence (inside lightning protection)
- 109 outer outriggers on ~ 21 meter spacing between inner fence and outer fence, up to ~ 100 meters from pond center
- Tanks are 8 ft diameter, 4 ft deep (1000 gallons) with one downward facing 8 in pmt mounted on top center.
- Individual optical fibers connected to each tank for laser calibrations (typically two 1:10 splitters in each line)
- Inner array has ~ 500 ft cables
- Outer array has ~ 1000 ft cables passing through spark–gaps at light protection system boundary.

12/12/02
Status of Outrigger Construction

Blue – completed
Green – pmt installed/filled
Red – Tank placed/Tyvek
Black – proposed site

66 inner tanks, 110 outer tanks

Proposed Array
Status of Outrigger Construction

- 147 outriggers complete
  - filled/instrumented/sealed
- 28 tanks placed, Tyveked, water-filled
- 1/3 of the calibration fibers completed
- waiting for new optical switch
- 174 outriggers surveyed
- New 20 Hamamatsu (same model) have been acceptance tested and encapsulated. Need to be shipped to site.

12/12/02

"actual" array positions

tank − no pmt
Status of Outrigger Construction

Without Outriggers

12/12/02
Status of Outrigger Construction

Without Outriggers

With Outriggers

12/12/02
Status of Outrigger Construction

Multiplicity

Leading Edge Times

Edge Multiplicity

Hit Frequency

12/12/02

Shoup – 9
Status of Outrigger Construction

Tasks to complete construction:
- Ship remaining 20 pmts to site
- Install remaining 28 pmts in tanks and light seal (~ 1 week)
- Finish remaining 2/3 of fibers & splitters (4–5 weeks?)

Outstanding issues:
- Black versus silver (cover)
- Losing threaded rod in pmt support
- UV covers are showing signs of wear
- Portable water filter system to clean "dirty" tanks

12/12/02
Status of Outrigger Construction

- portable water system – Andy Micheal – Spring
- fiber system – Scott Micheal – Feb.
- pmts – Tony – Jan weather?