

Progress Report on Event Location

Goal - Method

- Our goal is to be able to successfully locate neutrino interactions so as to :
 - Locate the period 3 new events.
 - Contribute (if possible) in event location.
- The method we have investigated and gone into details is Bruce's code for event location.

Procedure

- We found 38 daft location m-files corresponding to events that have been already located by Bruce, Carolyn or Jikou.
- We modified Bruce's code in certain points and attempted location of the 38 events with our version of the code and with Bruce's original code as well.
- We have examined the reasons of failure for the events that we could not locate.

Results

EVENTS	38
LOCATED (OUR VERSION)	32
NOT LOCATED (OUR VERSION)	6
LOCATED (BRUCE'S CODE)	28
NOT LOCATED (BRUCE'S CODE)	10

- The reasons for not locating the 6 events are :
 - 2 events had **large IP** of tracks from vertex $\sim > 10-15$ microns (Bruce's code could not locate them either)
 - 2 events had **primary tracks** with very **large χ^2** (Bruce's code located them)
 - In 1 event the **primary tracks missed upstream segments** (Vertex plate was 9 and tracks plate was 7 - Bruce's code located it)
 - In 1 event located by Carolyn we **could not find** one of the 2 **primary tracks** in the **daft file** (Bruce's code did not locate it either)

Conclusions

- Bruce's initial code and our code lead to very similar results as far as event location is concerned and could be considered complementary to each other.
- We were able to locate at least 32 of the 38 already located events .
- We are still working on possible improvements of the code which will increase the percentage of successful event location.
- We would like to get involved in event location