

# Global Database used to set up application programming “configuration” xml file

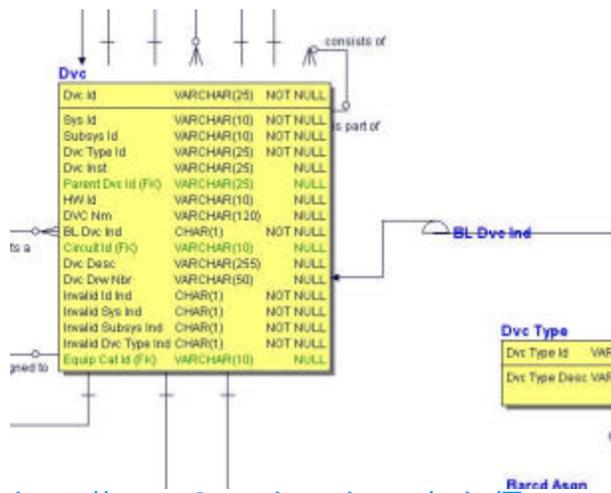


- Common configuration file, “state of the accelerator”, what’s in, where stuff is, ...
- Mirrors xal hierarchy
- MEBT device data populated, being used for initial programming tests, linac devices being populated
- Map from beamline devices to specific EPICS signal names is in this file

Database



XML configuration file



```

<node type="QH" id="MEBT_Mag:QH01" pos="0.135" len="0.061">
  <attributes>
    <align x="10000" y="2000.046" z="19546.440844" pitch="0" yaw="0"
      roll="0" type="bucket" />
  </attributes>
  <channelsuite name="magnetsuite">
    <channel handle="fieldSet" signal="MEBT_Mag:QH01:fieldSet"
      settable="true" />
  </channelsuite>
</node>
    
```

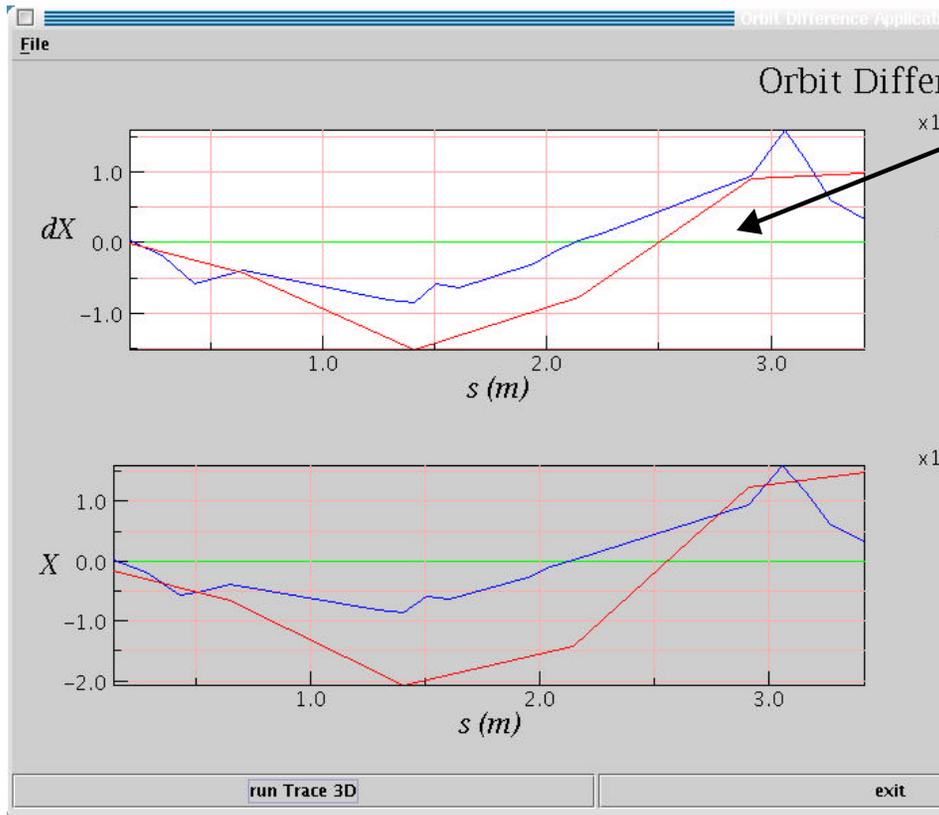
<http://ntser3.cad.ornl.gov/mis/EnterpriseModel/modell.htm>

# Global Accelerator Network – (sort of)



- MEFT application running at the SNS “Control Room”

# XAL Application: Model – Machine Comparison *(P. Chu)*



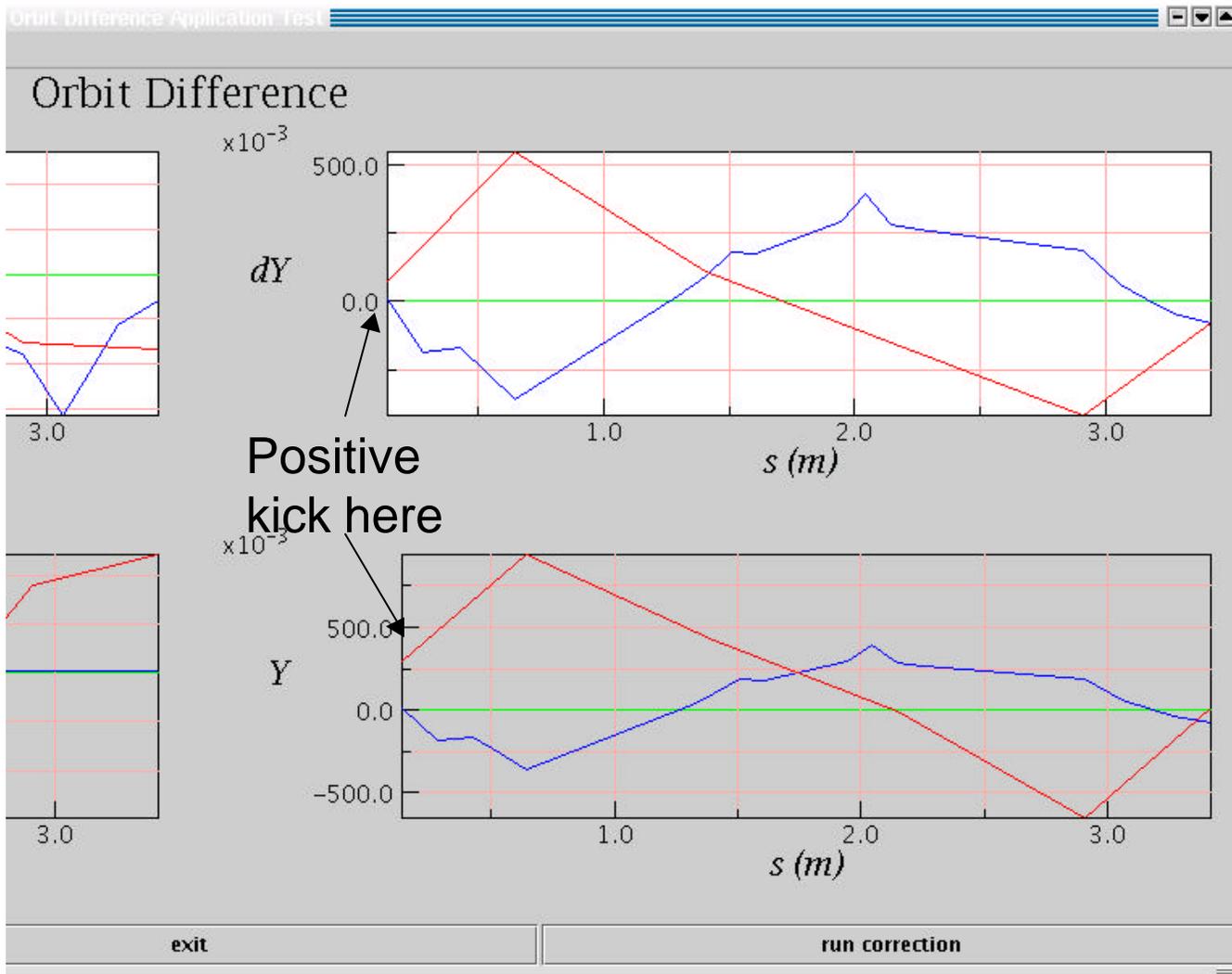
Diff. before/after correction

Using live "LBNL"  
MEBT data

Red = BPM,  
Blue = model

- Compare difference between two pulses
  - Observe effect of a magnet change
  - For both BPM signals and Model (Trace-3D)
- The beamline-device initialization is from the global database
- Also works with virtual accelerator

# Orbit Difference – Vertical Direction

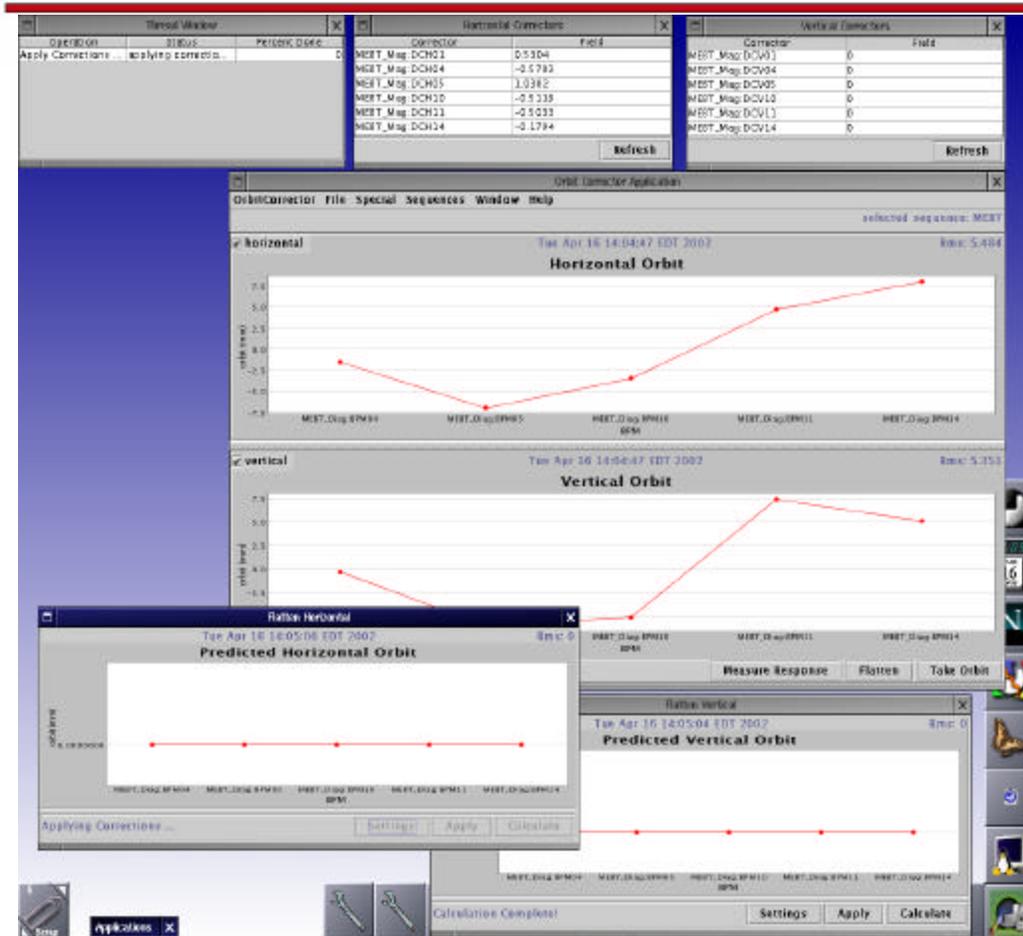


Running with  
MEBT at LBNL

- Red = BPMs
- Blue = model

• Oppps!!!!

# Orbit Correction App (T. Pelaia)



Running “passively”  
with MEBT at LBNL

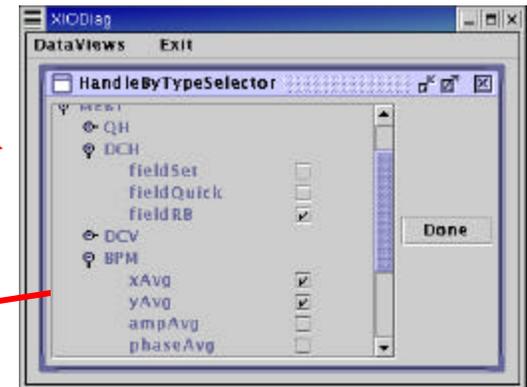
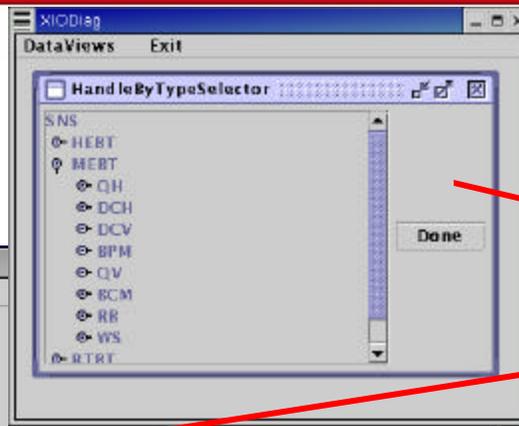
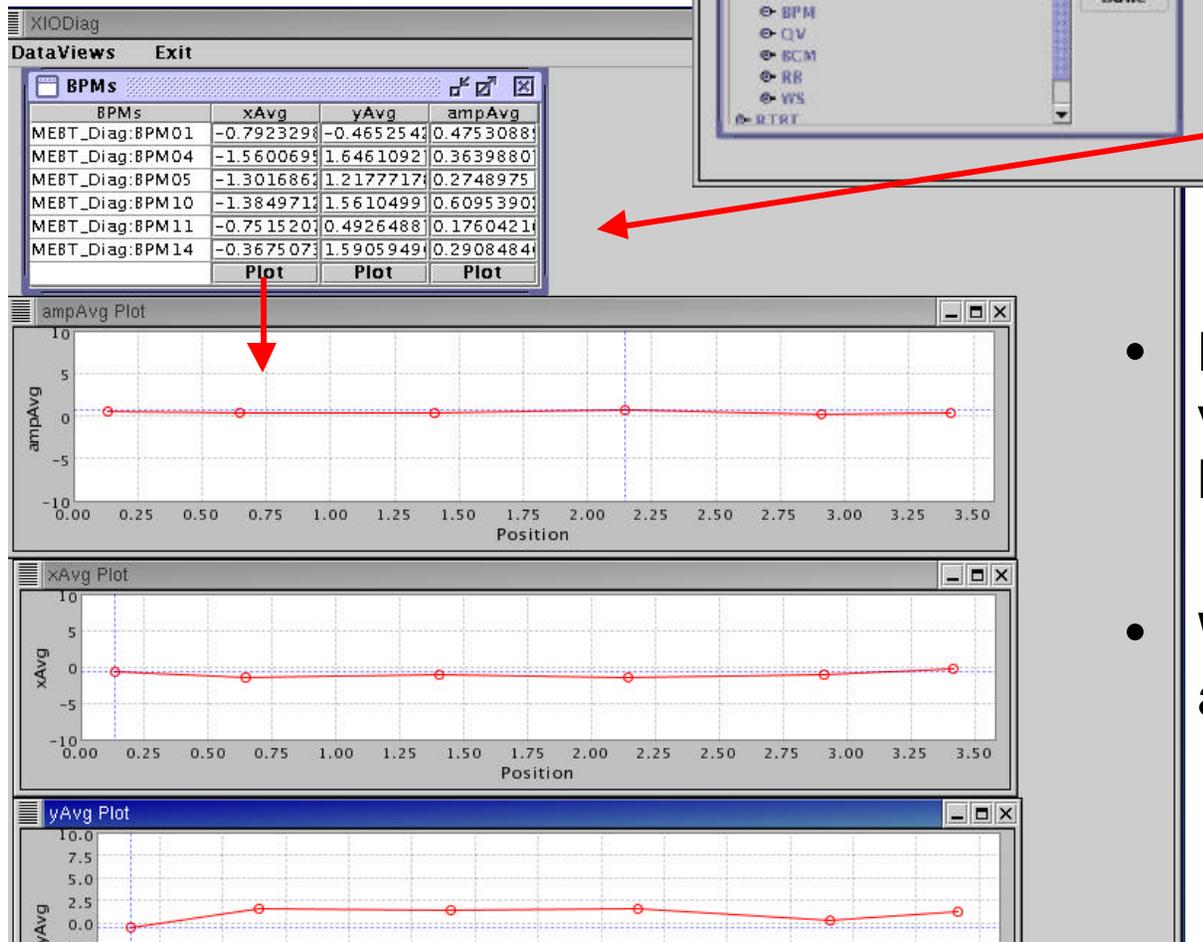
For a description of algorithms, see  
<http://it.sns.ornl.gov/asd/restricted/pdf/sns0058/sns0058.pdf>

- Several correction algorithms
- Works for any accelerator sequence
- Presently uses BPMs for beam information

# Diagnostic App (N. Pattengale)



- General purpose: drill down accelerator hierarchy and tag items to be monitored

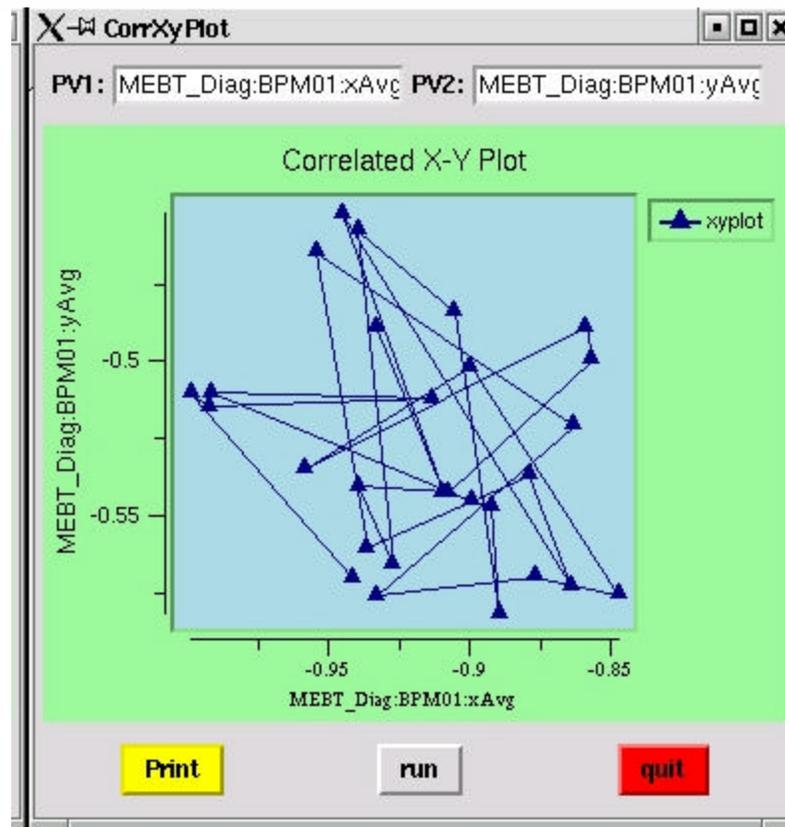


- Monitor accelerator values without having to know their names
- Works for any accelerator sequence

# X-Y Time Correlator Application (P. Chu, P. McGehee)



- Specify PV's for correlation



Running with  
MEBT data

- C++ dataSilo class gathers data from different IOCs and finds the most recent time synchronized data set
- Correlator engine tested with up to 24 PVs at 10 Hz