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## **Dayabay Offline processing chain: data to paper in 20 Days.**

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In March 2012 the Dayabay Neutrino Experiment published the first measurement of the  $\theta_{13}$  mixing angle. The publication of this result occurred 20 days after the last data that appeared in the paper was taken, during which time normal data taking and processing was continuing. This achievement used over forty thousand 'core hours' of CPU and handled eighteen thousand files totaling 16 TBs. While these numbers are not in the same league as those seen by the larger LHC experiment, they were achieved on a much smaller infrastructure than is available to those experiments.

This paper will provide an overview of the Dayabay Offline processing chain that made this possible. It will follow the data's progress from when the DAQ files were closed up to the point where fully calibrated and reconstructed data is supplied to the physicists so that they can execute their own analysis algorithms. The tools used throughout the chain, such as Sentry and PSquared, will be described as well as how the chain is linked together.

Also included in this paper will be the improvement to the processing chain since the first results were published, improvements such as the automation of gain calibrations and energy scaling. The purpose of this paper is to demonstrate what can be done by experiments on the scale of Dayabay with limited software and computing resources.

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