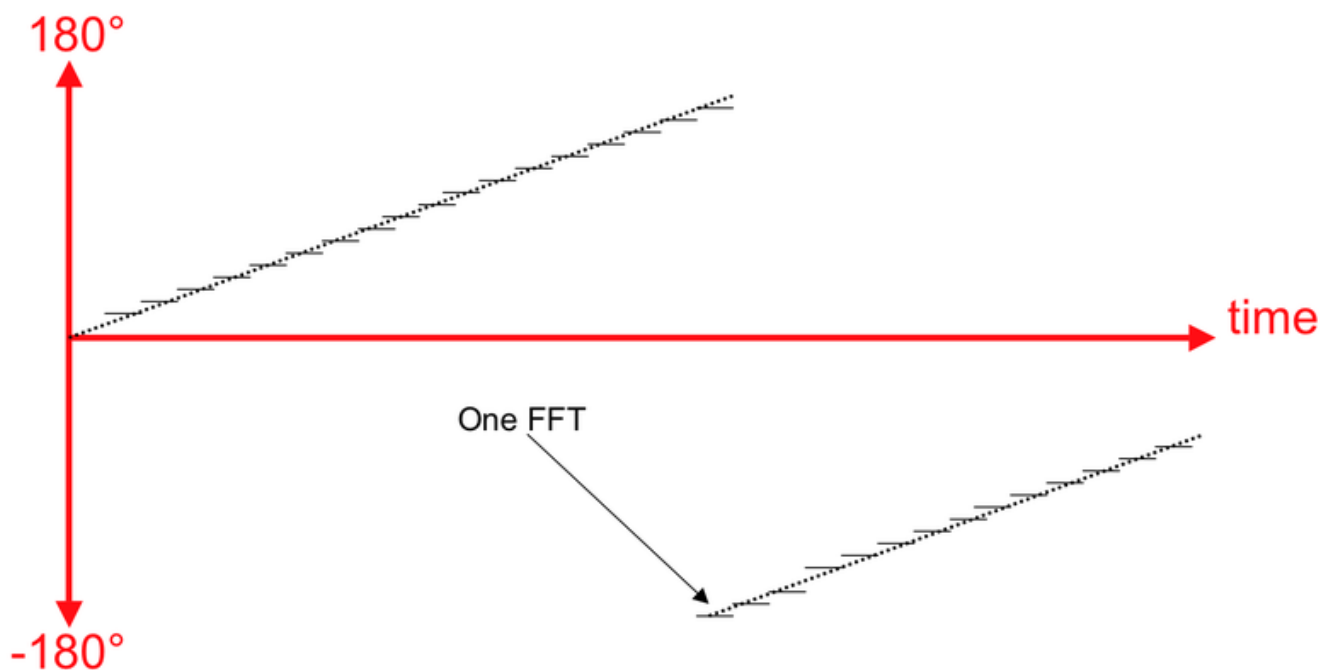


# Local Oscillator (LO) offsets in DiFX2.0

An incorrectly tuned LO at a station leads to a linear phase change with time on all baselines to that station. The magnitude of the phase change depends on how far wrong the LO was.

In DiFX2.0, this can be corrected by specifying an “LO offset” to the correlator. This is always present for every frequency of every datastream in the .input file, but is defaulted to 0 unless you tell the correlator otherwise using [vex2difx](#).

The LO offset is corrected by adding (or subtracting) a constant amount of phase from every channel **after** the FFT. This is much less computationally intensive than doing it beforehand. But it does mean that the maximum LO offset that can be handled without significant decorrelation is ~kHz for a typical continuum observation, as shown in the figure below. This is because the intrinsic duration of the FFT is of order a few 10s of microseconds, so a constant approximation becomes bad for very high rates (large LO offsets). But if the LO offset is really very large, it can be handled by a combination of LO offset and [spectral selection](#).



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