Frequency Analysis

Amanjot Bhullar

September 27, 2017

Frequency Analysis

Data	Fundamental Freq and Harmonics	Upsilon Class
ALVir	cell5	CEPH_F
CCLyr	cell8	CEPH_F
CSCas	cell2	T2CEPH
FMDel	cell5	T2CEPH
MZCyg	cell8	T2CEPH
OGLE-BLG-T2CEP-294	cell2	CEPH_F
r_101.20779.225	cell5	NonVar
r_102.22856.44	cell8	T2CEPH
r_102.23632.48	cell2	LPV_SRV_AGB_O
r_103.24814.3749	cell5	T2CEPH
r_104.20779.5959	cell8	NonVar
r_105.21556.104	cell2	T2CEPH
RRMic	cell5	T2CEPH
RXLib	cell8	T2CEPH

So now that we've seen how much aliasing can mess with our ability to measure things, how do you get around it? Well, when you want to measure a system / signal that is oscillating, the rule of thumb is as follows. First, you figure out what kinds of frequencies you expect to see in your system. If we were going to be measuring the position of a ball that I was physically moving up and down, we definitely wouldn't be worried about it going up and down ten billion times per second (actually we could probably rule out anything larger than like 10 times per second). Then you take the highest frequency you think you could see and make sure you are measuring the system at least 10 times that frequency. (In the example above, say we guessed the fastest I could have moved the ball was 20 cycles per second. We would then measure at least 200 times per second, and we obviously wouldn't have missed anything.)