Input requirements for Sys ID

Quality of results depend on:
1) properly designed flight test and properly executed flight tests

2) properly selected + well documented characteristics of the instrumentation system

Points covered:
1) general aspects of data requirements for SI (system ID)
2) Instrumentation system requirements
3) Optimal inputs
4) frequency sweep inputs
5) flight testing considerations
6) computer generated sweeps

Section 5.2)
Optimal inputs: maximize information content for minimum maneuver time.

These optimal inputs are an excellent starting point for SI flight testing

"3-2-1-1" test is a multistep input test which has been highly successful in time-domain SI.

→

Recommended Pilot inputs for the freq response identification method.

☆ These are not optimal, but are easy, safe, and reliable flight testing for accurate and robust identification of fixed wing dynamics

1) logarithmic chirp
   - excitation spectral content has uniform distribution
   - Deviations in the inputs are generally equal (I think of this as displacement - positive + negative) around the reference trim
   - Frequency range of excitation is controlled throughout the test. min and max freq are reported to the pilot in real time. - Slowly increasing freq and stopping at a predetermined maximum promotes safety.
   -

This is ideal for an accurate SI of a complex state-space model.

Goals for model verification:
1) check time domain response predictions vs measured
2) ensure robustness of the model

→

Notes: continued

1) The first goal can be achieved by using the same inputs
2) The second goal needs different inputs

Question: What are different inputs?
Ans: The different input would be a Doublet - it is different enough from a freq sweep to check against overtuning

I still dont understand what a long period input is at the start of the frequency sweep is.

For chris - getting experience on the Flight sim with the sweep and doublet would be advantageous.

need to enable joystick input in QGC