

AGN Variability in the GOODS Fields

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Abstract

Variability is a proven method to identify intrinsically faint active nuclei in galaxies found in deep HST surveys. We propose to extend our short-term variability study of the GOODS fields to include the more recent epochs obtained via supernovae searchers, increasing the overall time baseline from 6 months to ~ 2.5 years. Based on typical AGN lightcurves, we expect to detect $\sim 70\%$ more AGN by including these more recent epochs. Variable-detected AGN samples complement current X-ray and mid-IR surveys for AGN by providing unambiguous evidence of nuclear activity. Additionally, a significant number of variable nuclei are not associated with X-ray or mid-IR sources and would thus go undetected. With the increased time baseline, we will be able to construct the structure function (variability amplitude vs. time) for low-luminosity AGN to $z \sim 1$. The inclusion of the longer time interval will allow for better discrimination among the various models describing the nature of AGN variability. The variability survey will be compared against spectroscopically selected AGN from the Team Keck Redshift Survey of the GOODS-N and the upcoming Flamingos-II NIR survey of the GOODS-S. The high-resolution ACS images will be used to separate the AGN from the host galaxy light and study the morphology, size and environment of the host galaxy. These studies will address questions concerning the nature of low-luminosity AGN evolution and variability at $z \sim 1$.

Investigators:

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Number of investigators: 4

Dataset Summary:

Instrument	No. of Datasets	Retrieval Method	Retrieval Plan
ACS	40	DVD	Send DVD via mail.