

TRGB Distances from Archived Data

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Abstract

Accurate distances can be determined to galaxies if the Tip of the Red Giant Branch (TRGB) can be resolved. The methodology was taken to a new level of refinement with HST/ACS, with distances accurate to 5% obtained for galaxies at 8 Mpc with single orbit observations. Given multiple orbit observations, distances can be obtained for galaxies as remote as the Virgo Cluster. There are now a tremendous number of images in the HST archive that can be used for TRGB measurements. Many were obtained expressly for this purpose but many more were taken for other reasons. While the TRGB method has been demonstrated to give accurate distances, systematic effects can dominate if the data is not analyzed in a coherent manner. The authors of this proposal have recently developed an end-to-end analysis procedure that they have been applying to data acquired in the course of their own program. Now that ACS is not available, there will be less new material entering the archive. It is an appropriate time to process all the available images and recover consistent TRGB measurements and distances for all nearby galaxies observed with HST.

Investigators:

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Number of investigators: 3

Dataset Summary:

Instrument	No. of Datasets	Retrieval Method	Retrieval Plan
ACS	504	FTP	1/12th of the datasets per month
WFPC2	769	FTP	1/12th of datasets per month