Title : CFHT community surveys with MegaCam for galaxy evolution and cosmology

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Abstract : CFHT plans to conduct community surveys for five years from 2027 or early 2028. The surveys could use between 800 and 1400 nights with a maximum of 275 nights per year. Around half of this time (~ 140 nights/year) consists of dark nights suitable for MegaCam observations, and the other half of bright nights suitable for Wenaokeao observations. Wenaokeao is the co-mount of CFHT's optical and near-IR spectropolarimeters (ESPaDOnS and SPIRou) that will be commissioned in 2026, enabling simultaneous observations with both instruments over the spectral range 0.37 to 2.44 microns and at a spectral resolution of R ~ 70,000. MegaCam, CFHT's 1-square-degree camera, is arguably one of the most efficient u-band wide-field imagers in the Northern Hemisphere and will remain so for years to come. MegaCam and Wenaokeao both offer unique time-domain observation and monitoring capabilities.

At the recent CFHT Users' Meeting held in May 2025, various proposals were presented for MegaCam observations with various science goals, galaxy evolution, galactic archaeology with surveys of the Galactic plane or nearby galaxies, large-field reference surveys in support of space missions, time-domain astronomy, cosmology with multi-band imaging for galaxy clustering in selected photometric redshift ranges and for target selection for massive spectroscopic surveys. The presentation will outline the various scientific cases that were presented at the user meeting and will describe the process that will be put in place for the definition, implementation, and scientific exploitation of these important CFHT Community Surveys for the French community.