ALFA Surveys as Complements to other Major Surveys

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ALFA surveys will produce legacy datasets

- **GALFA**: HI component of the ISM
- 10X better angular resolution than other wide area HI surveys
- Complements other surveys of ISM/Milky Way
**Example: GALFACTS**

- Will complement the interferometric surveys of the Galactic Plane
- Will provide complete coverage from the Galactic Equator to the Pole; Full Stokes
- CMB Galactic foregrounds
Example: PALFA Surveys

• Tremendous data rate: Pbtyes
• Collaboration with CIT
  http://arecibo.tc.cornell.edu/arecibo
• Goals
  • Identify high-quality pulsar candidates
  • Identify giant single-pulse events that are plausibly real after filtering out RFI
  • Identify commonly occurring RFI
• Final products: catalogs of identified pulsars and their associated folded pulse profiles
• Observations unique to survey epoch

Once detected, pulsars must be timed

Timing of the PSR 1257+12 revealed its planets
• Observations unique to survey epoch
  • Pulsar timing: Tests of general relativity
  • Statistical characterization of transients
  • Statistical characterization of RFI (helpful for science!)
  • Search dataset for GLAST counterparts
Example: ALFALFA

- Incorporates comparison with other multiwavelength datasets (NVSS, SDSS) and databases (AGC,NED) during reduction process.

- Allows quick identification of targets for multiwavelength followup (HST, Spitzer, Palomar, WIYN) in coordinated team effort.
Example: ALFALFA

- 2MASS galaxy @ cz ~ 12659 km/s

- Low mass systems barely visible on SDSS; more prominent in DSS2blue
ALFALFA Precursor Run: Giovanelli et al. 2005 AstroJ 130, 2598 & 2613

- Data available!
- SQL database
- PHP interface
- Download catalog in XML/VOTable format
- Spectra
- Cross reference with DSS, 2MASS and SDSS images

http://egg.astro.cornell.edu/alfalfa/data
Existing HI Digital Archive (Springob et al 2005)

• Extension to/from ALFALFA
• SSAP for data cubes

Brian Kent’s 2005 NVO School project

HI Archive – VO Interface for IDL client
ALFA Surveys as Complements to other Major Surveys

- Unique datasets, unlikely to be surpassed or years to come
- Multiwavelength applications required by science goals
- Collaborative team approach stimulates exchange
- Adoption of VO formats/protocols eases exchange
See the ALFA Science Posters in Session 187 plus some of the ALFALFA posters in Session 179 – today!