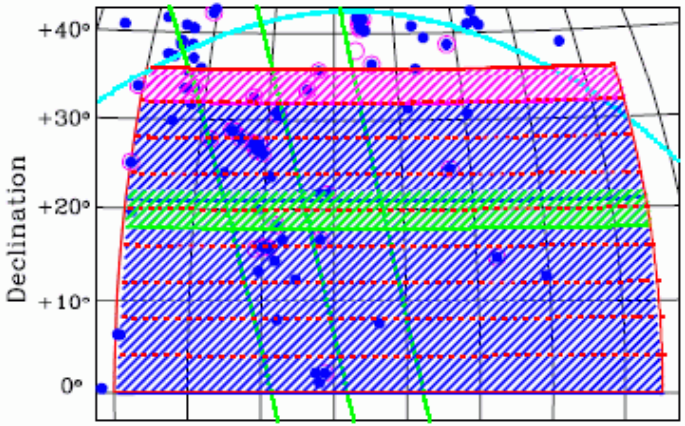
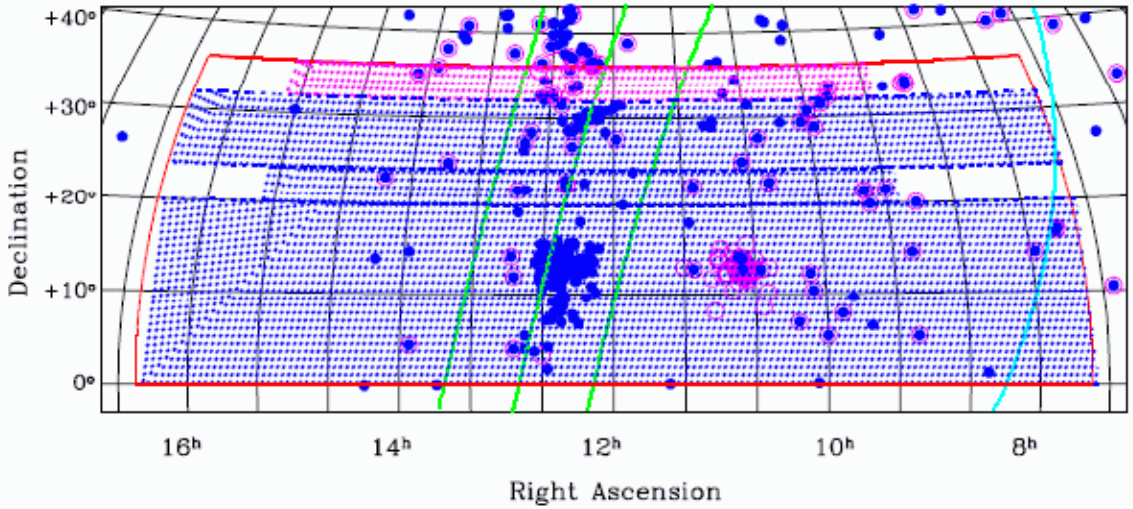
ALFALFA observing status Dec 2010





We hope to complete the spring/Virgo region in 2011.
It will be restricted to 09h-15h (because of AUDS).

The fall portion will not be completed until 2012.

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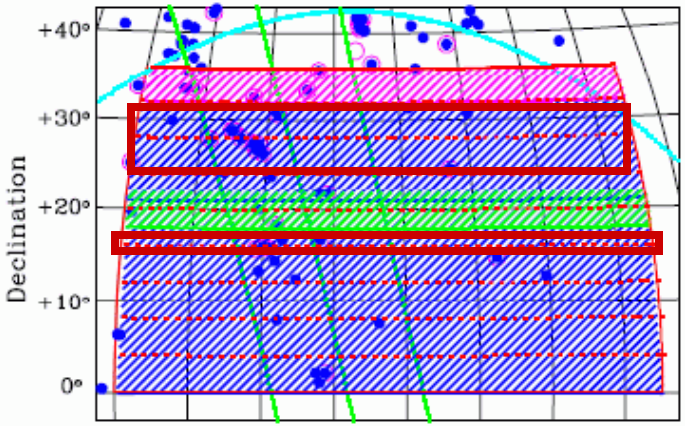
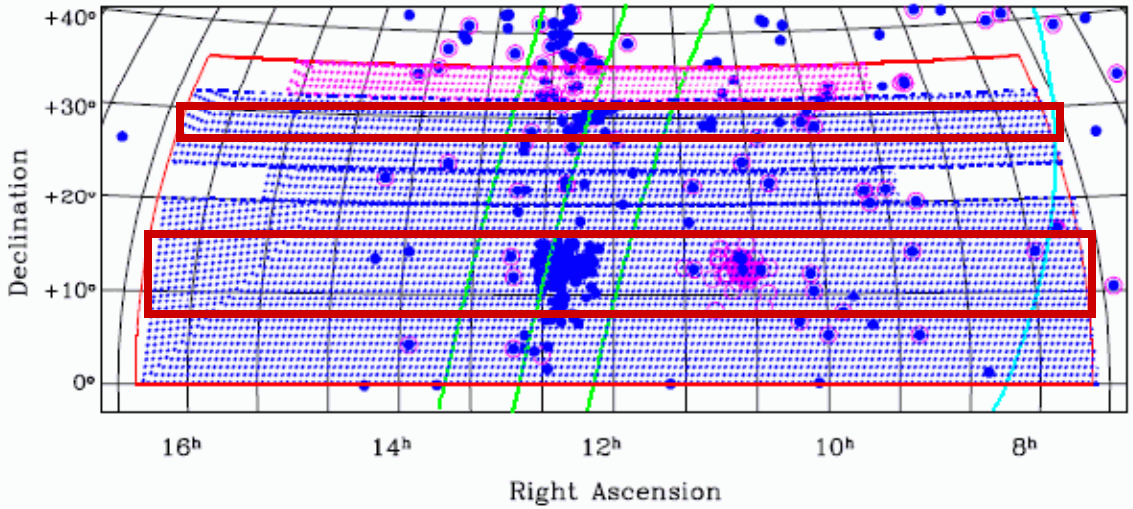
ALFALFA catalog status Dec 2010





In progress: spring +03 deg

In final catalog construction: spring +01 deg

Next: spring +23, +29; fall +01, +07, +09, +13 deg

(flagging is complete for all those strips already)

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ALFALFA 40% catalog paper

- Catalog "frozen" as of 01Jan2011
- New data products:
  - SDSS cross match PhotoID/SpecObjID/flag
  - Extended comments
  - Revised website
- New HI line flux density scale; validated
- Draft in advanced stage of preparation
  - Author list includes those of you who participated in significant on-site/remote observing prior to 2010

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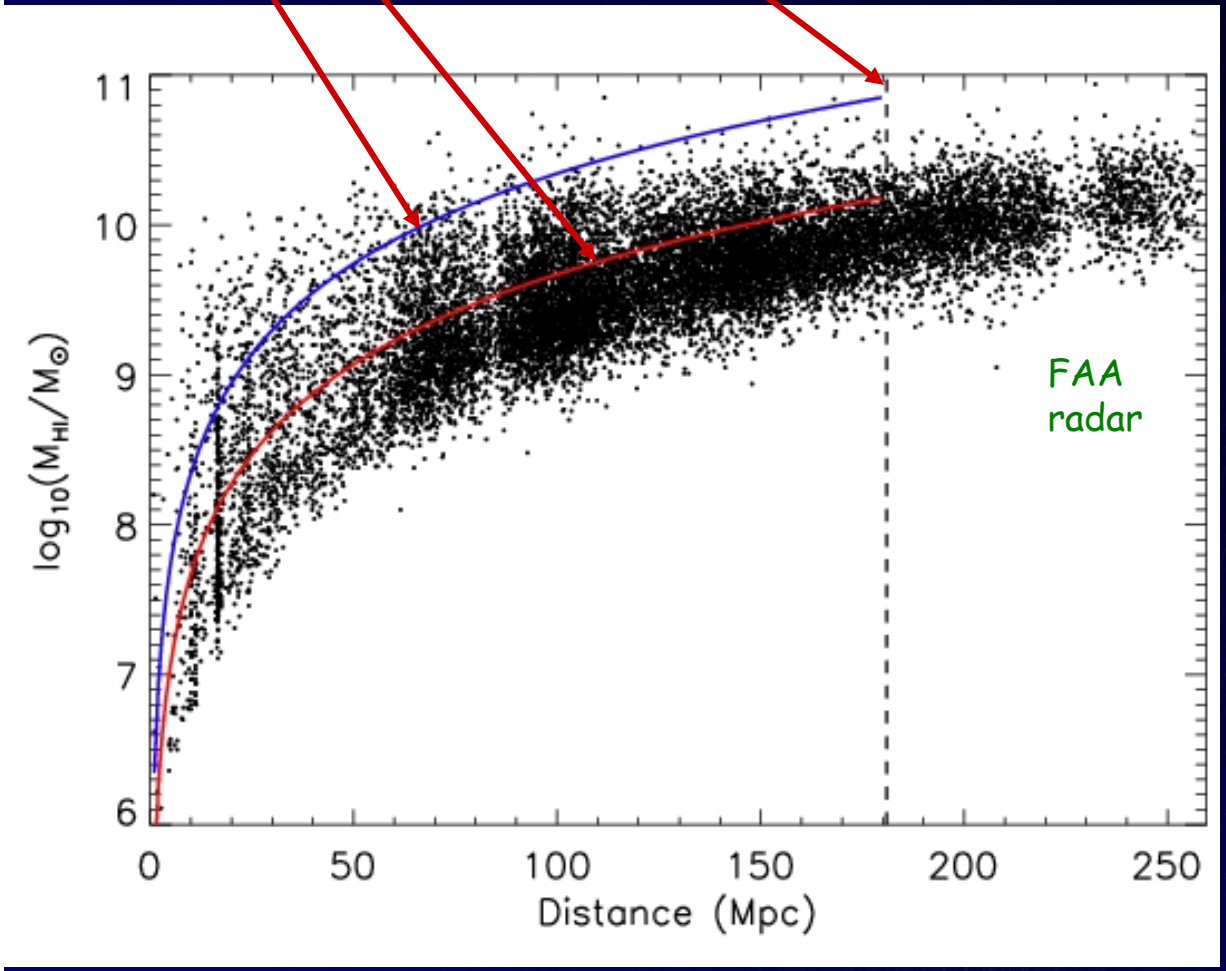
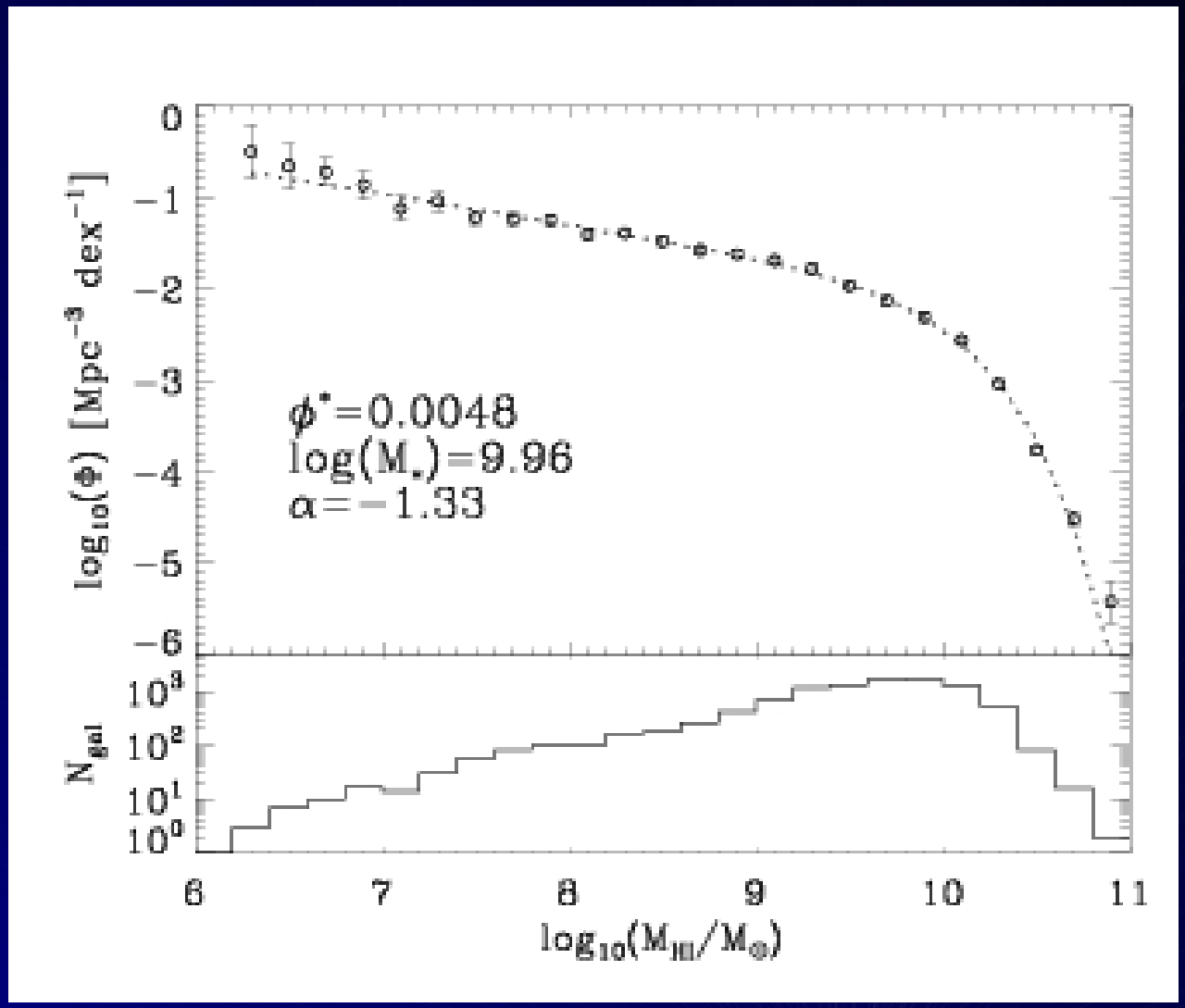
ALFALFA advantages



- ALFALFA covers adequate volume with adequate sensitivity
- In addition to sensitivity, bandwidth and velocity resolution, ALFALFA yields positions to < 20″
  ⇒ Identify most probable optical counterpart (OC)
- Continuum/RFI tracked
  ⇒ Allows stacking at arbitrary positions

ALFALFA

HIMF from ALFALFA

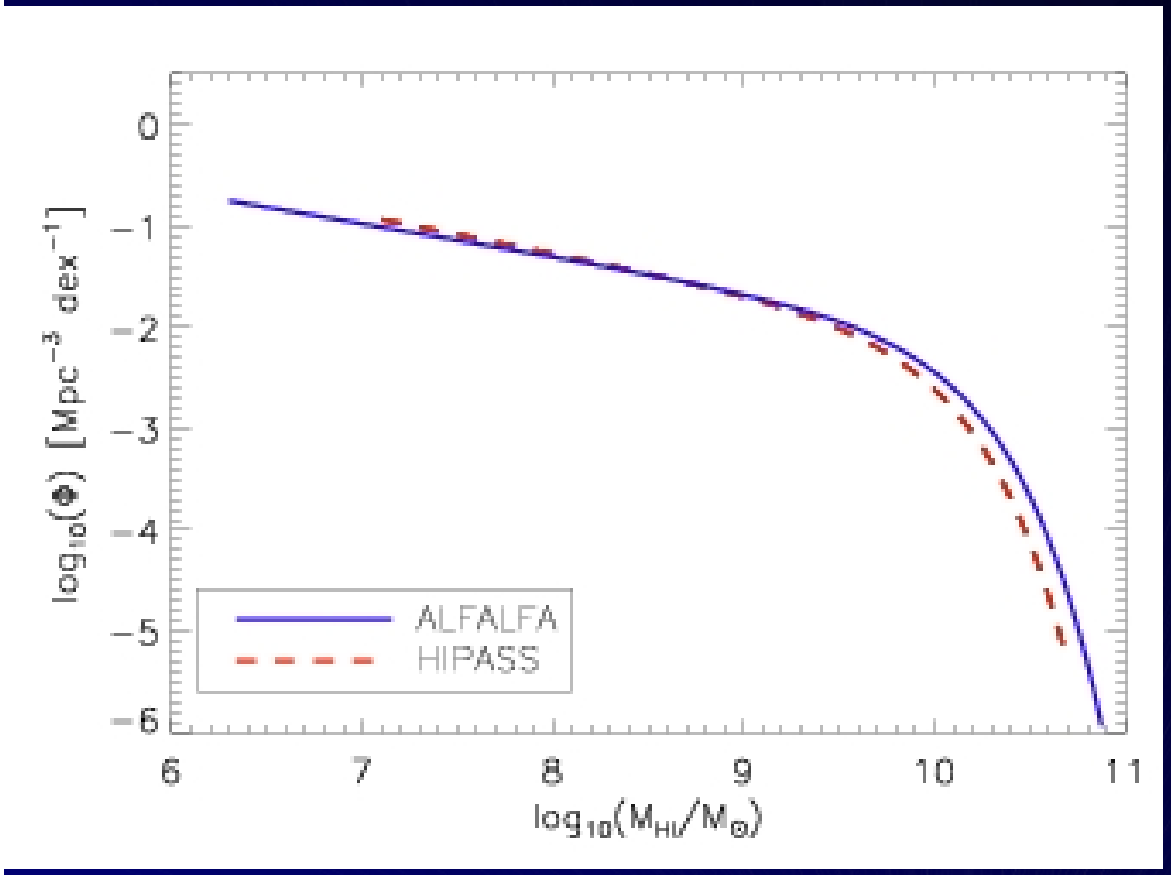


Martin et al. 2010
ApJ 723, 1359

- Based on contiguous regions in Virgo vs anti-Virgo directions (35% of total)
- Code 1 only
- cz < 15,000 km/s
- 10,119 galaxies in sample

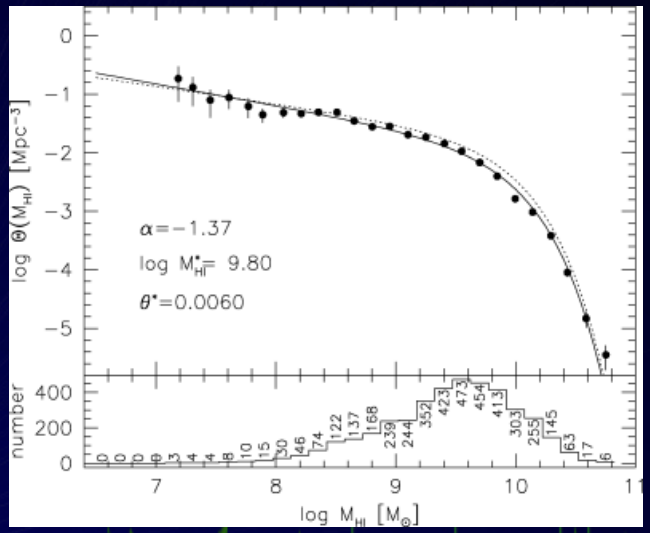
ALFALFA

HIMF from ALFALFA



HIPASS: Zwaan et al. 2005

- HIPASS did not sample low/high mass ends
- HIPASS error bars are large!



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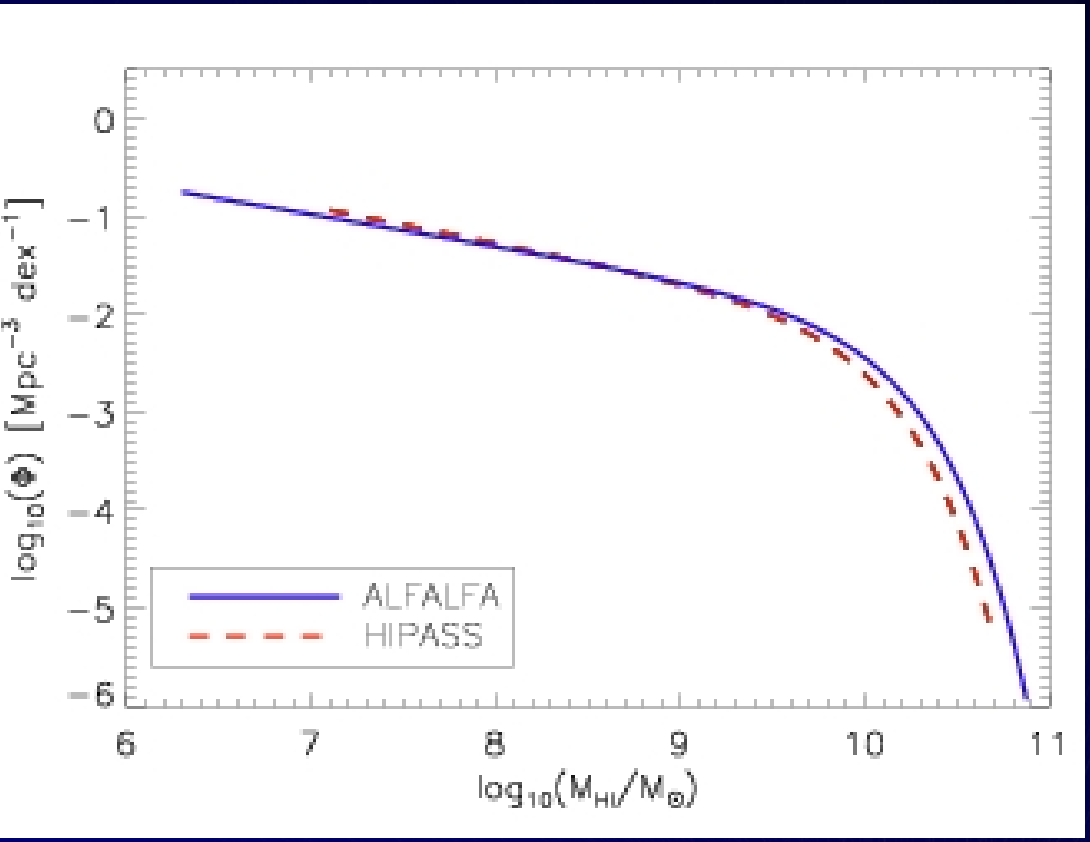
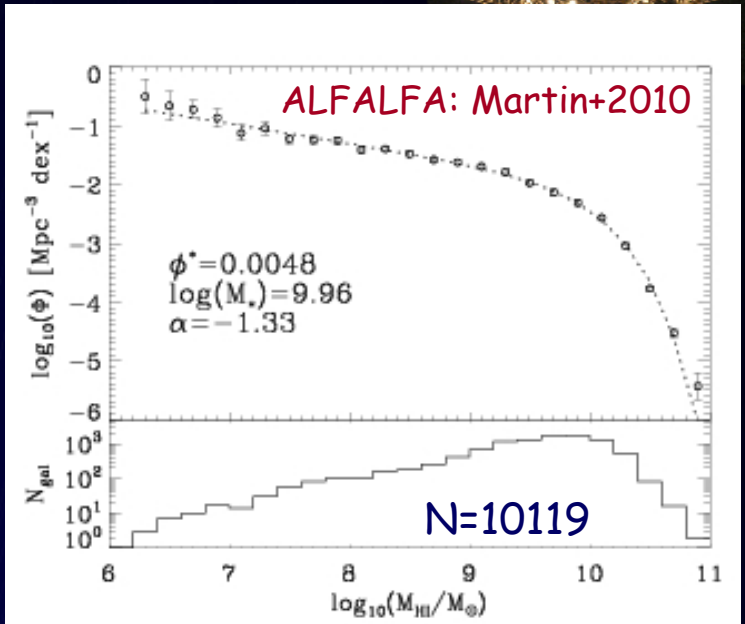
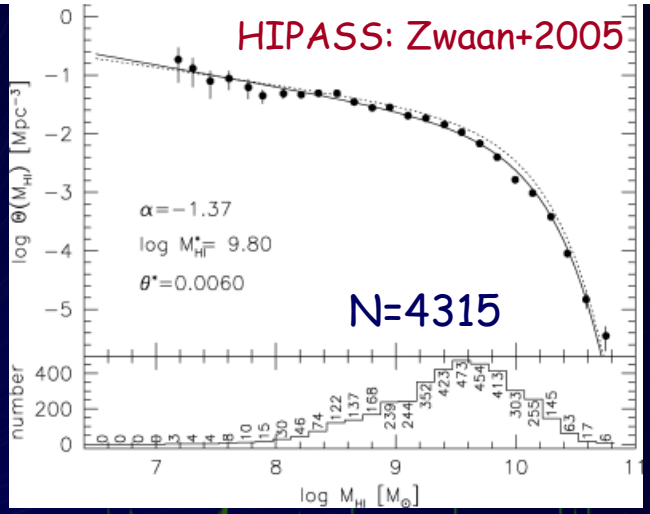
HIMF from ALFALFA







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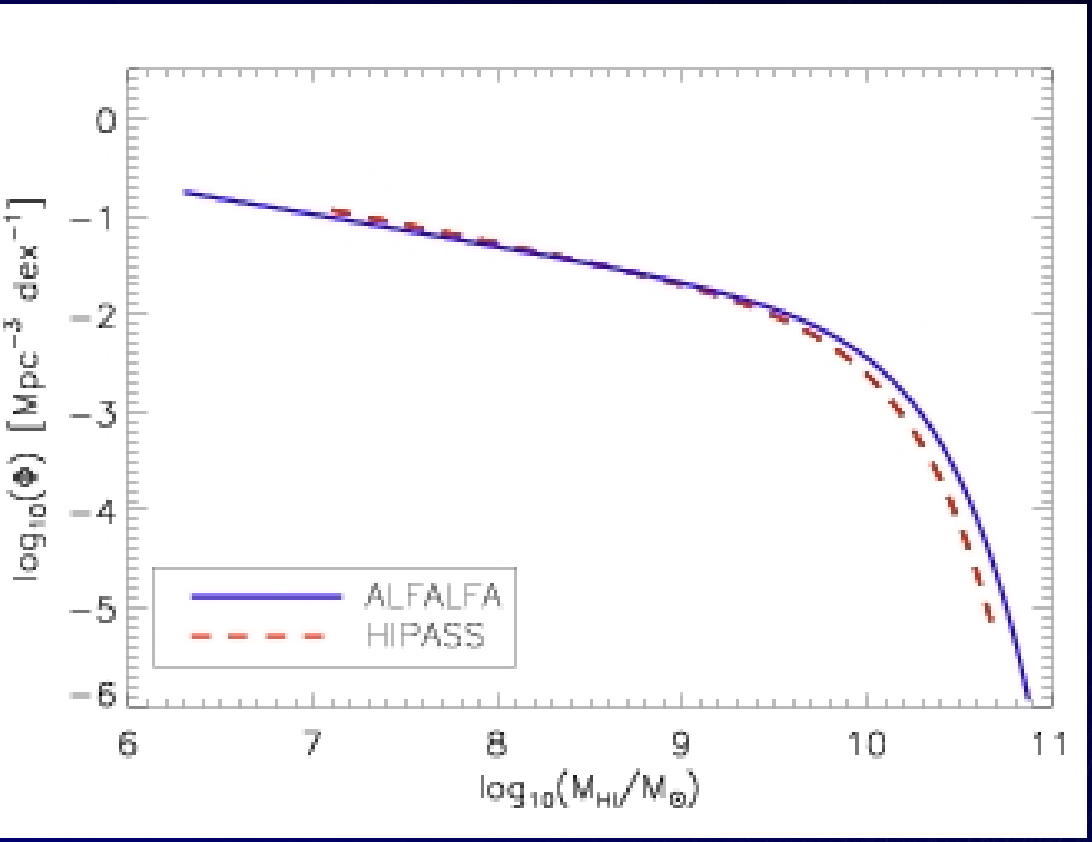
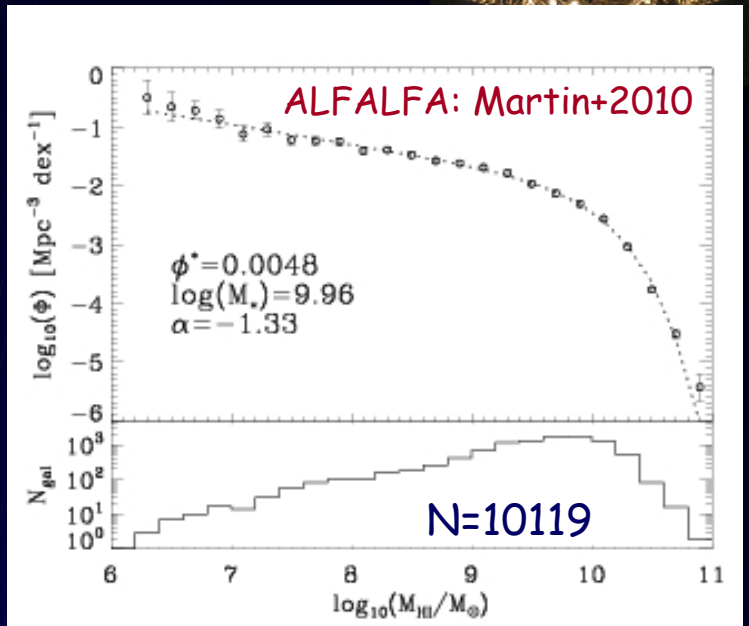
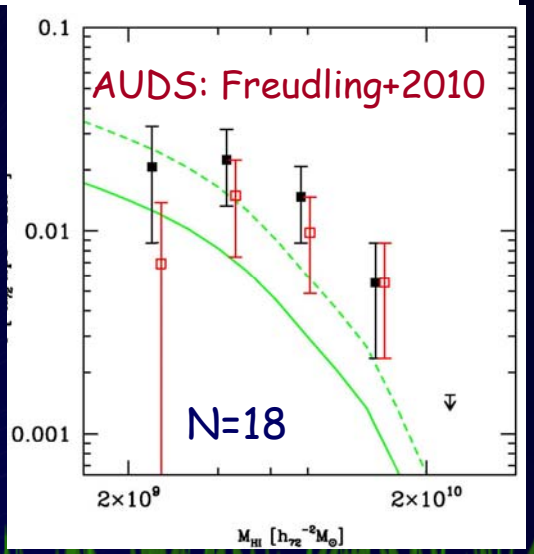
HIMF from ALFALFA







If you don't sample enough volume,
you don't get a robust answer.

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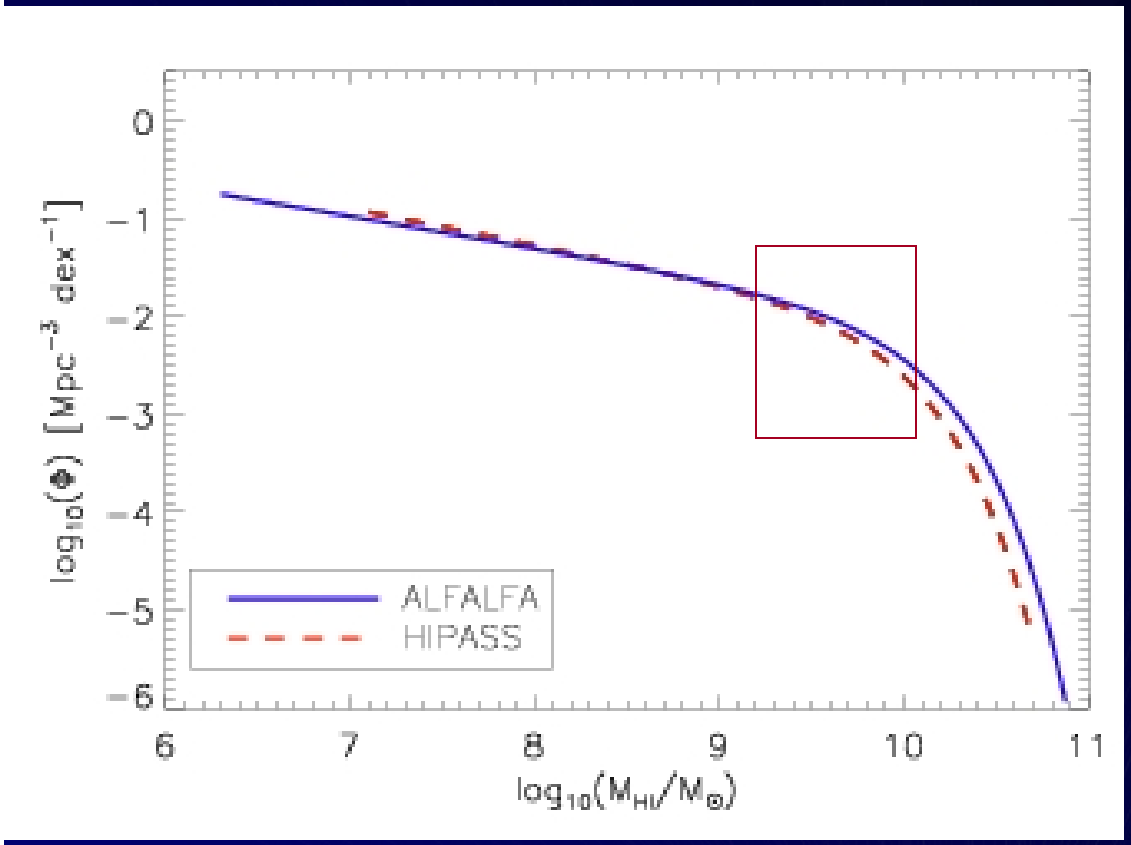
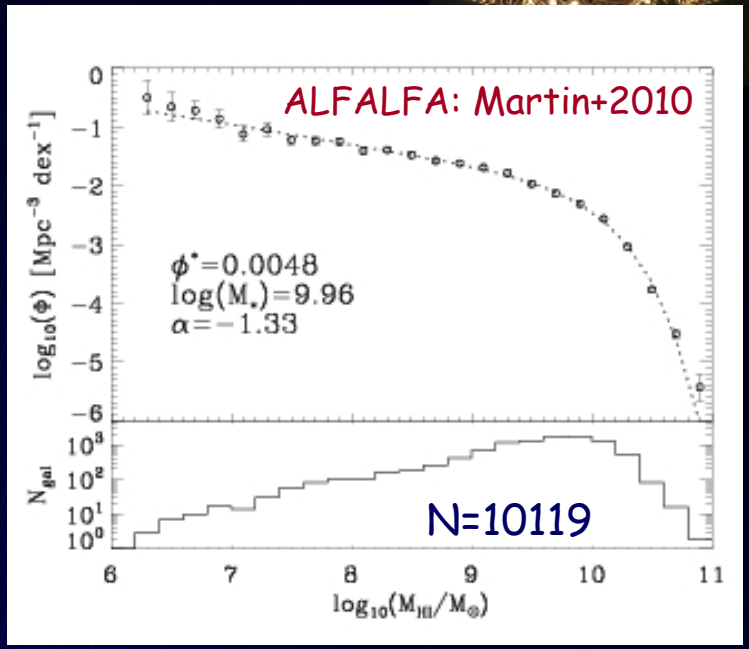
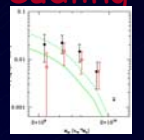
HIMF from ALFALFA





AUDS: Freudling+2010



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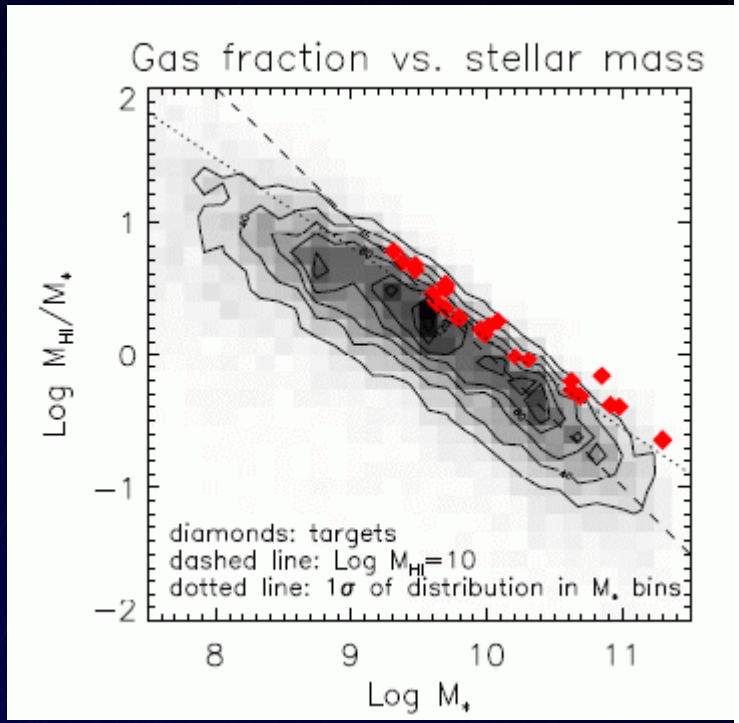
Main results of for massive galaxies

- ALFALFA samples a population of high HI mass galaxies that is underrepresented in any of the other surveys: HIPASS, AUDS, AGES(?) because they do not cover adequate volume with adequate sensitivity.
- These highest HI mass objects are the present day counterparts of the objects that will dominate future studies at high z with the SKA and its pathfinders (e.g., EVLA,APERTIF, ASKAP, MEERKAT).
- Indeed, the gas fraction declines with increasing stellar mass.
- Some of the high HI mass galaxies are exceptionally gas-rich; in some, the HI makes up the dominant form of baryons.



Shan Huang
(with thanks to Jarle)

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Big issues for discussion
(these are interrelated)

- We need more help with flagging
  - Thanks this year especially to Lyle and Becky
- We need more help with the observing.
  - Remote observing Spring 2011
  - On-site/remote Fall 2011, Fall 2012
- The NSF grant will run out next year.
  - Should we submit a renewal proposal?
  - If so, how do we justify it?
- How can we move the collaborative groups project along?

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