On the survival of massive starbursts.

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30 DORADUS en todas sus luces

Radiative phase before "break-out". swept-up ISM

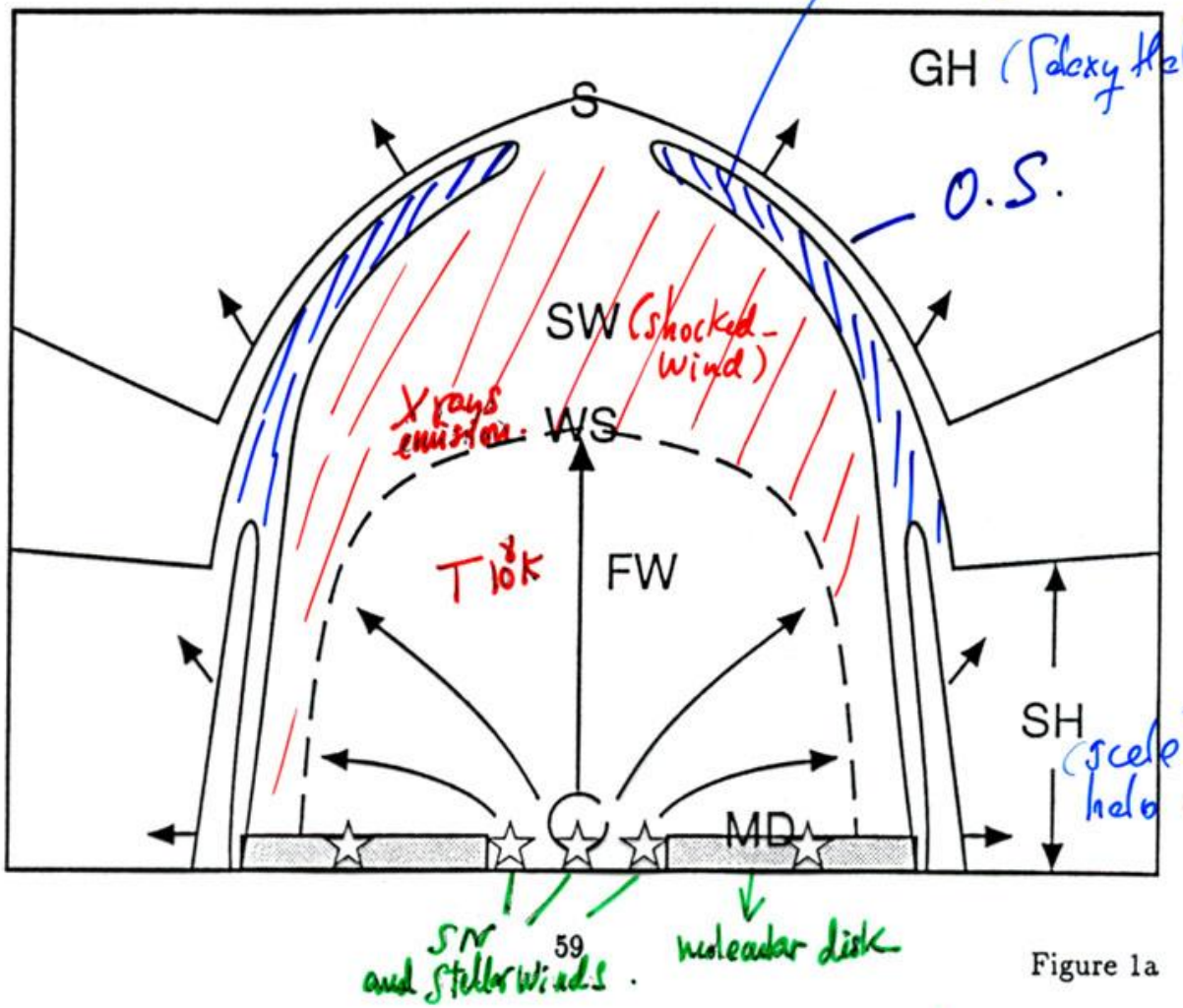
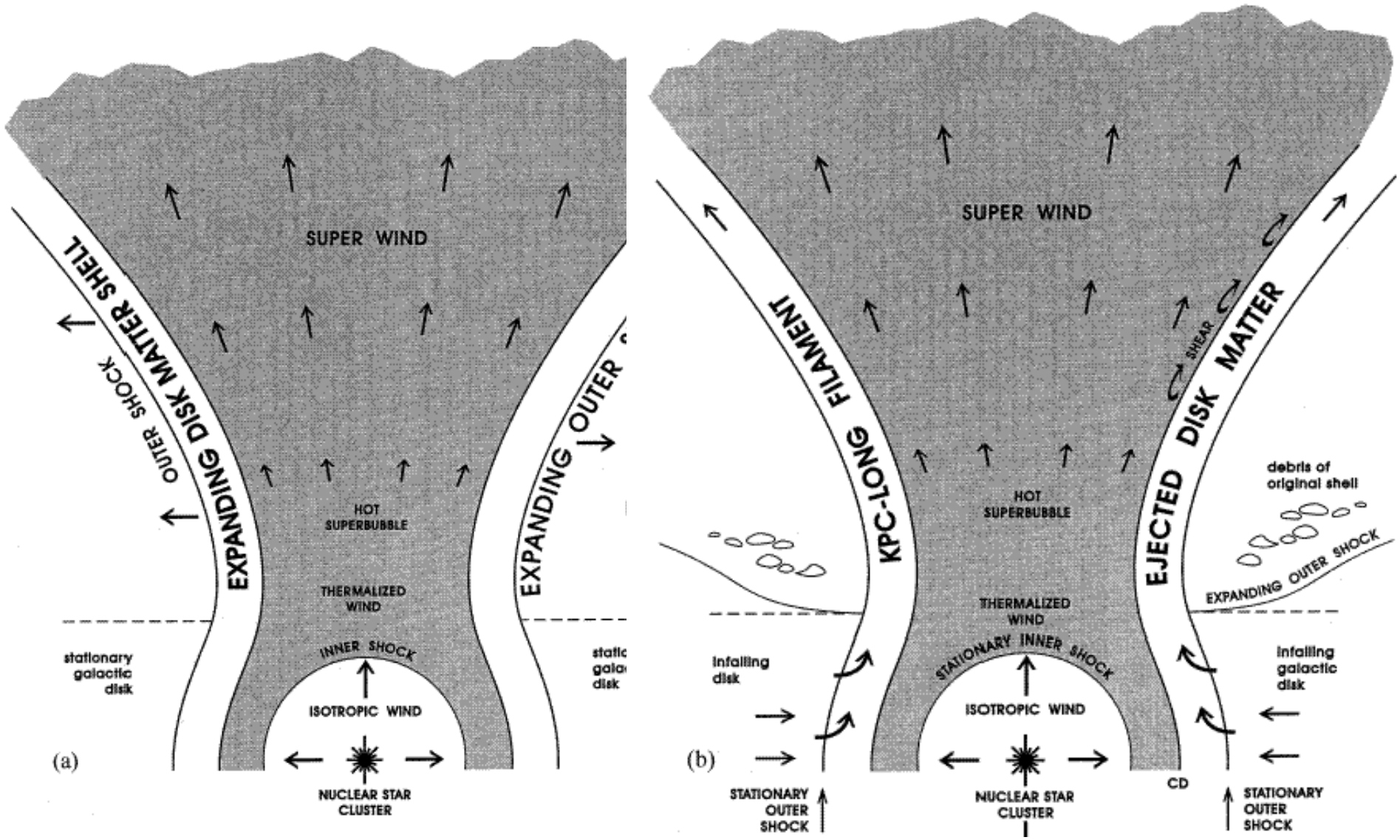


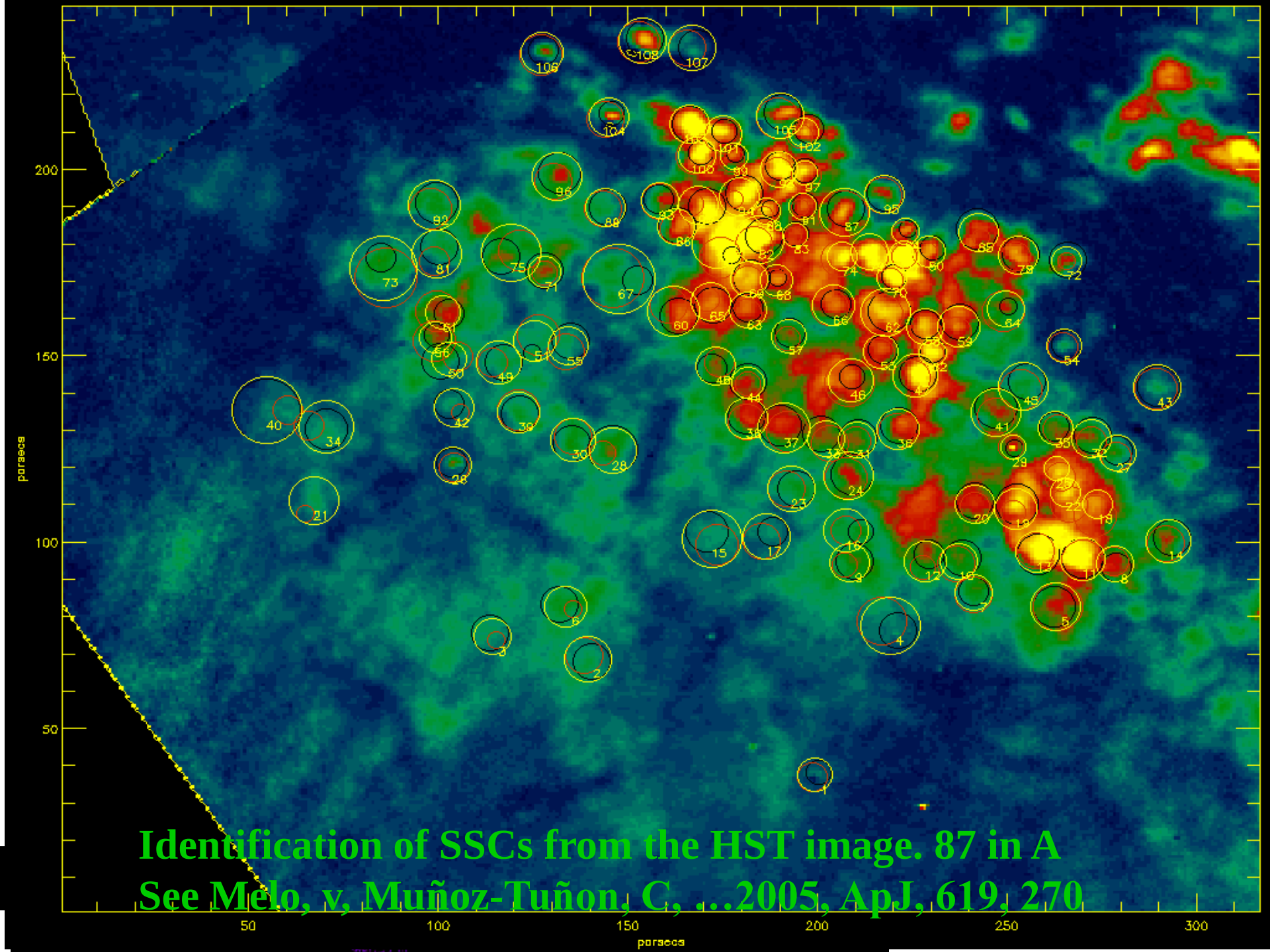
Figure 1a

Tomisaka & Ikeuchi (1988)

Super Galactic Winds: models I

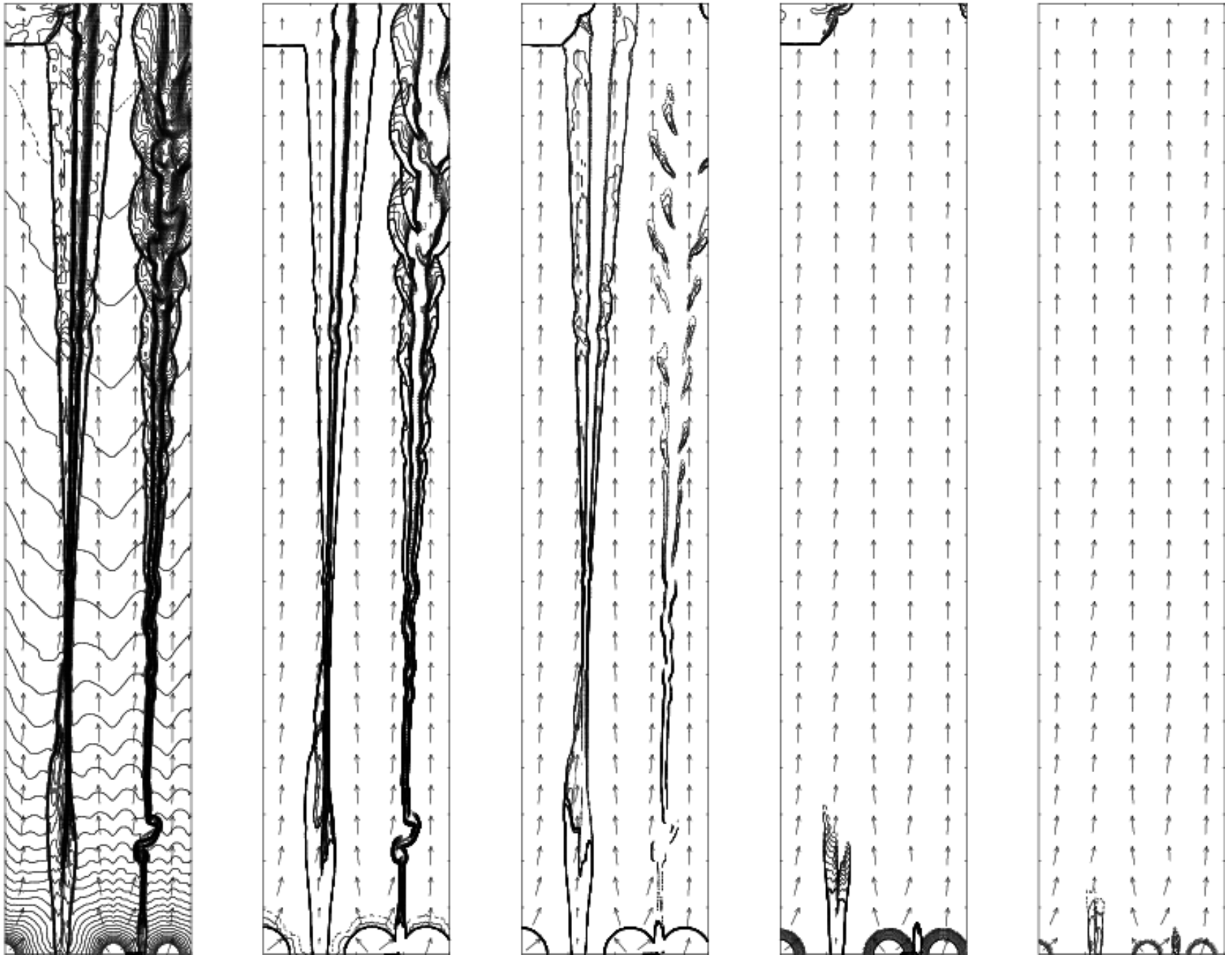


Tenorio-Tagle y Muñoz-Tuñón 1997, Ap. J., 478; 1998, MNRAS, 293.



Identification of SSCs from the HST image. 87 in A

See Melo, v, Muñoz-Tuñon, C, …2005, ApJ, 619, 270


1 Kpc
$10^4<T<10^5$K
$10^5<T<10^6$K
$10^6<T<10^7$K
$10^7<T<10^8$K

Such collections of superstar clusters and starbursts in dwarf galaxies have been claimed to lead to **supergalactic winds** – giant streams that carve their way out of galaxies,allowing for the exit of the recently processed material
(see Chevalier & Clegg, 1985, Nature, 317, 44; Heckman et al. 1990, ApJS, 74, 833; Tenorio-Tagle & Muñoz-Tuñon, 1997, ApJ, 478, 134; 1998, MNRAS, 293, 99; Tenorio-Tagle et al. 2003, ApJ, 597, 279).

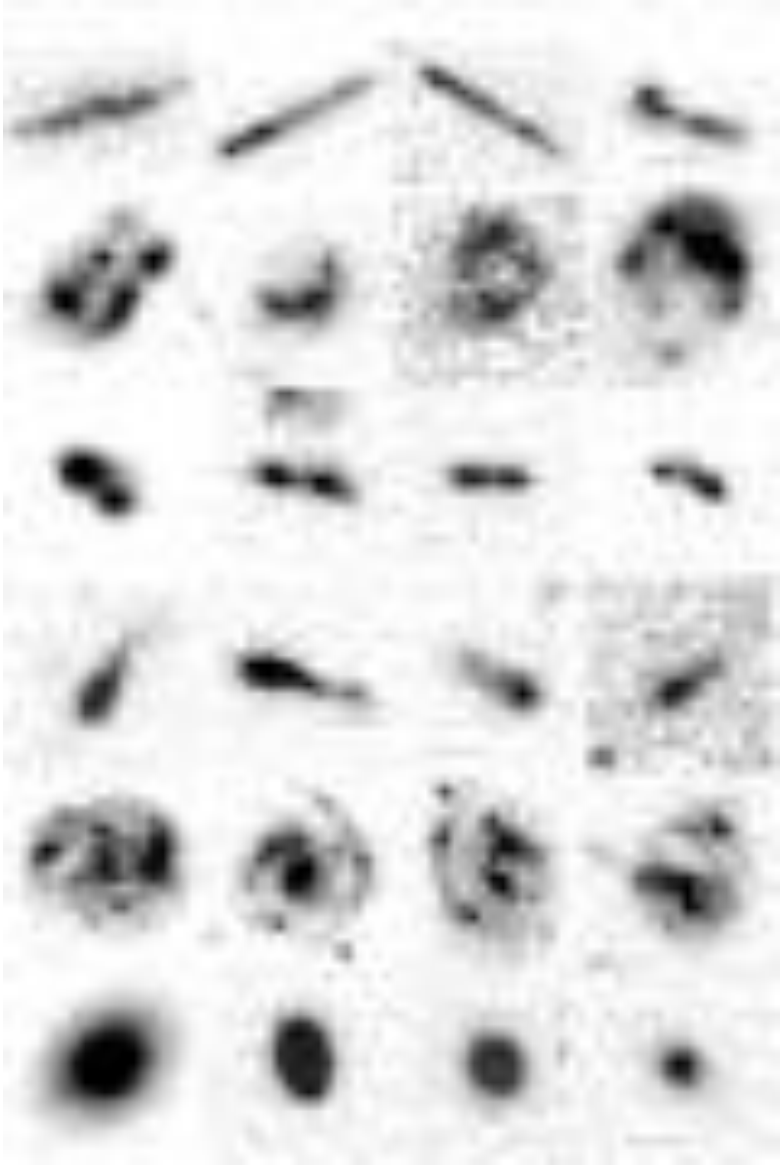
Large cluster densities may also lead to strong radiative cooling of the outflow, causing the wind to stall and fall back. Then, new stellar generations within the cluster volume could form **(positive starformation feedback)**
Silich et al. (2004, ApJ, 610, 226 ; 2007, ApJ, 669, 652; ...2010, ApJ, 711, 25)

Large and Massive clumps of star formation detected in the Hubble UDF (see Elmegreen et al. 2005, ApJ, 627, 632). Are in galaxies at (0.07<z<5) (ACS).

Targets to study the star formation feedback

Galaxies morphologies UHDF

- Chain
- Clump-Cluster
- Double clump
- Tadpoles
- Spiral
- Elliptical



Open Questions within estallidos

- Clumps can be 10^9 Msun with sizes near 2Kpc, SFR near 50 Msun/year…
- Supergalactic winds cases at various z?
- Better estimations of size, age, energy, redshift, mass…
- Use of line profiles (if existing) to determine mass and feedback.
- Are the different clumps linked together?
- Work in progress with proposals for Gemini and VLT (FLAMES) to study individual targets.

El norte también existe…

And the GTC also…

Search for targets in the North.

Search in COSMOS

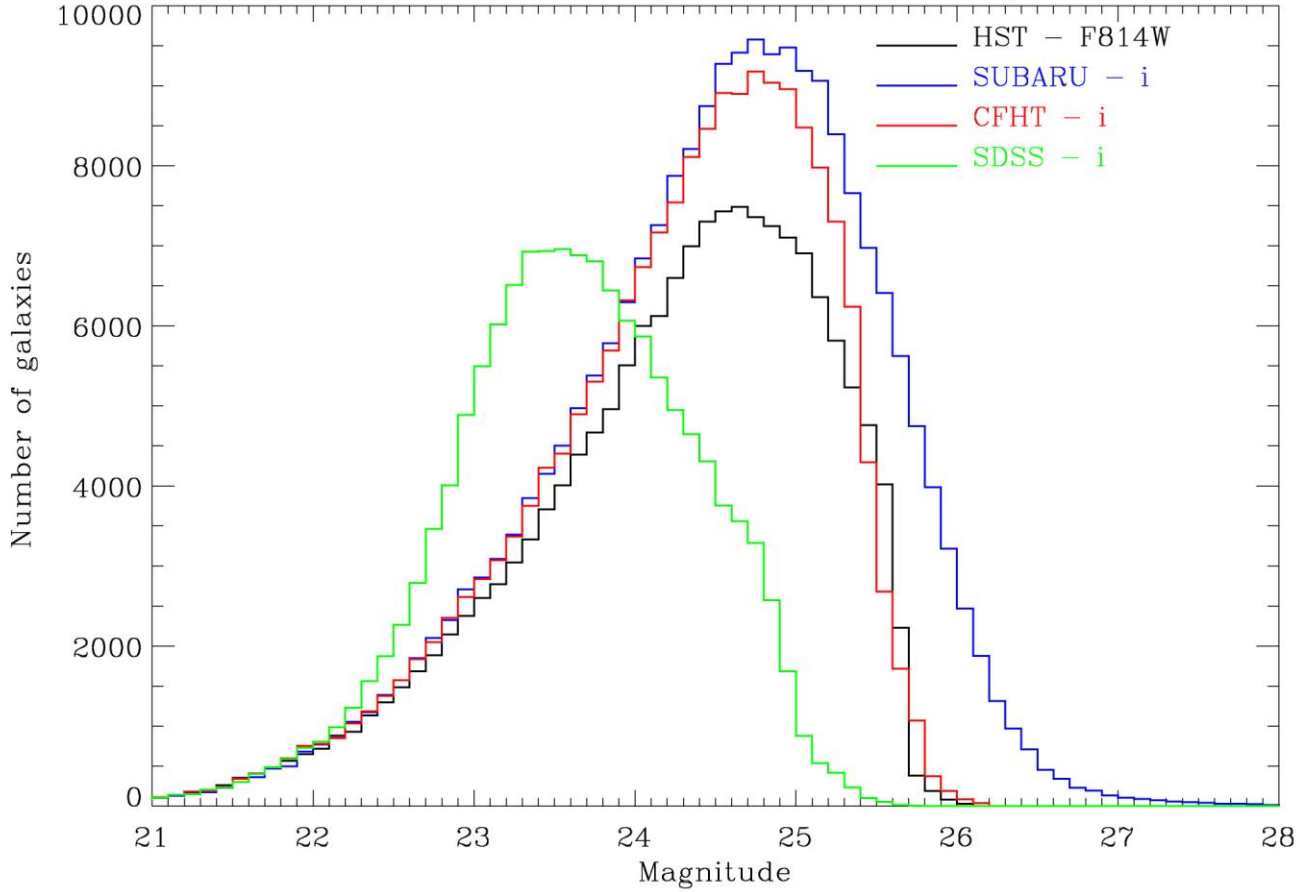
(CMT & Jairo Mendez Abreu)

- COSMOS is an HST Treasury Project to survey a 2 square degree equatorial field with the Advanced Camera for Surveys (ACS).

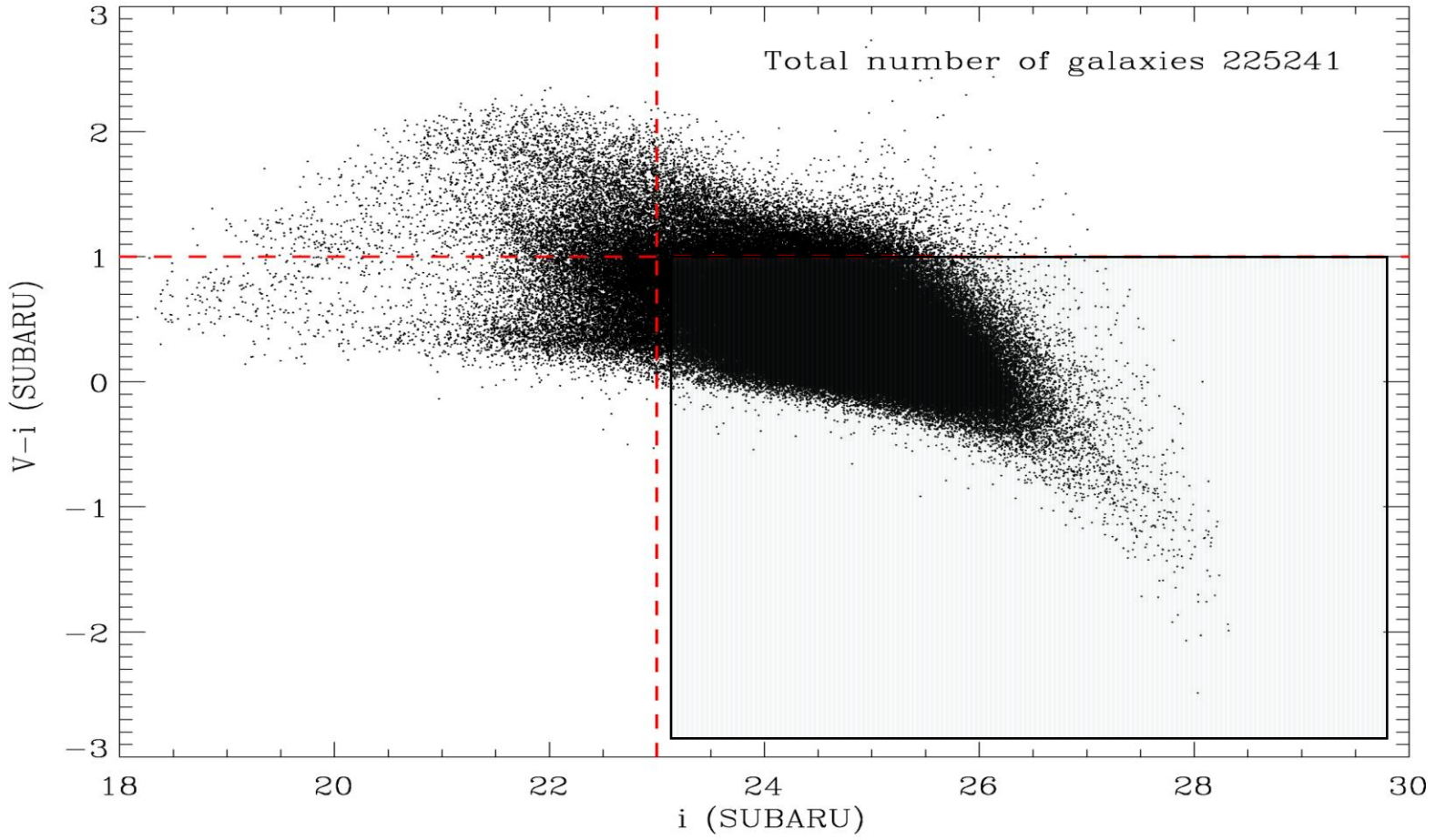
- The project also incorporates major commitments from other observatories around the world, including the VLA radio telescope, ESO's VLT in Chile, ESA's XMM X-ray satellite, and Japan's 8-meter Subaru telescope in Hawaii.

- COSMOS will detect:
- over 2 million objects with IAB > 27 mag
- over 35,000 Lyman Break Galaxies (LBGs)
- extremely red galaxies out to z ~ 5
- **The COSMOS field is equatorial, for easy access to telescopes in both hemispheres:**
- RA (J2000) = 10:00:28.6
  DEC (J2000) = +02:12:21.0
- COSMOS has completed all of its HST observations. This includes two years of observations with the ACS, WFPC2, and NICMOS instruments. **Observations are available** through the COSMOS Archive. Additional observations, such as the Subaru optical, VLA radio, and XMM X-ray surveys of the field have also been completed. Object catalogs are also being produced, and spectral observations of objects in the field are ongoing.

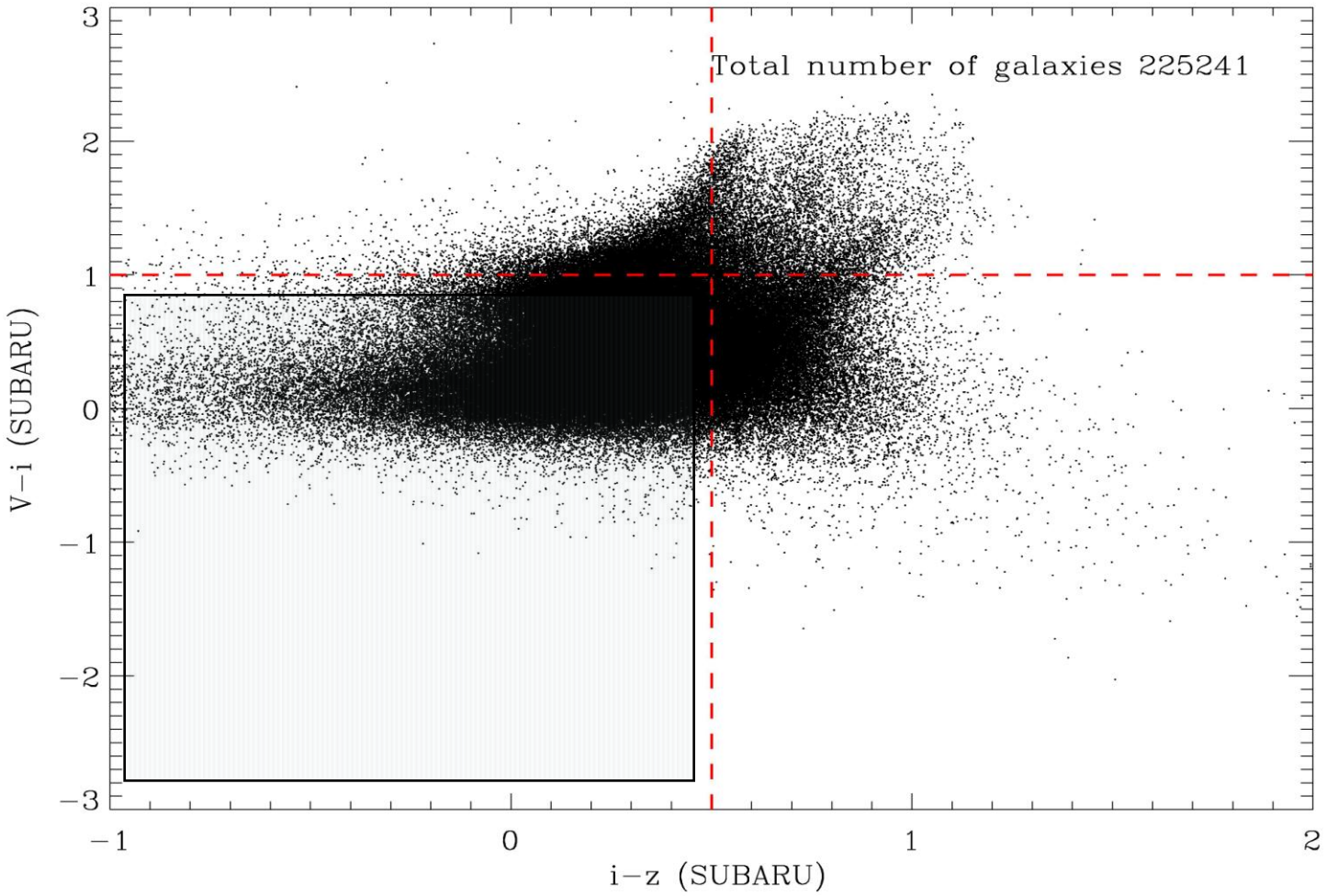
COSMOS
magnitude distribution function



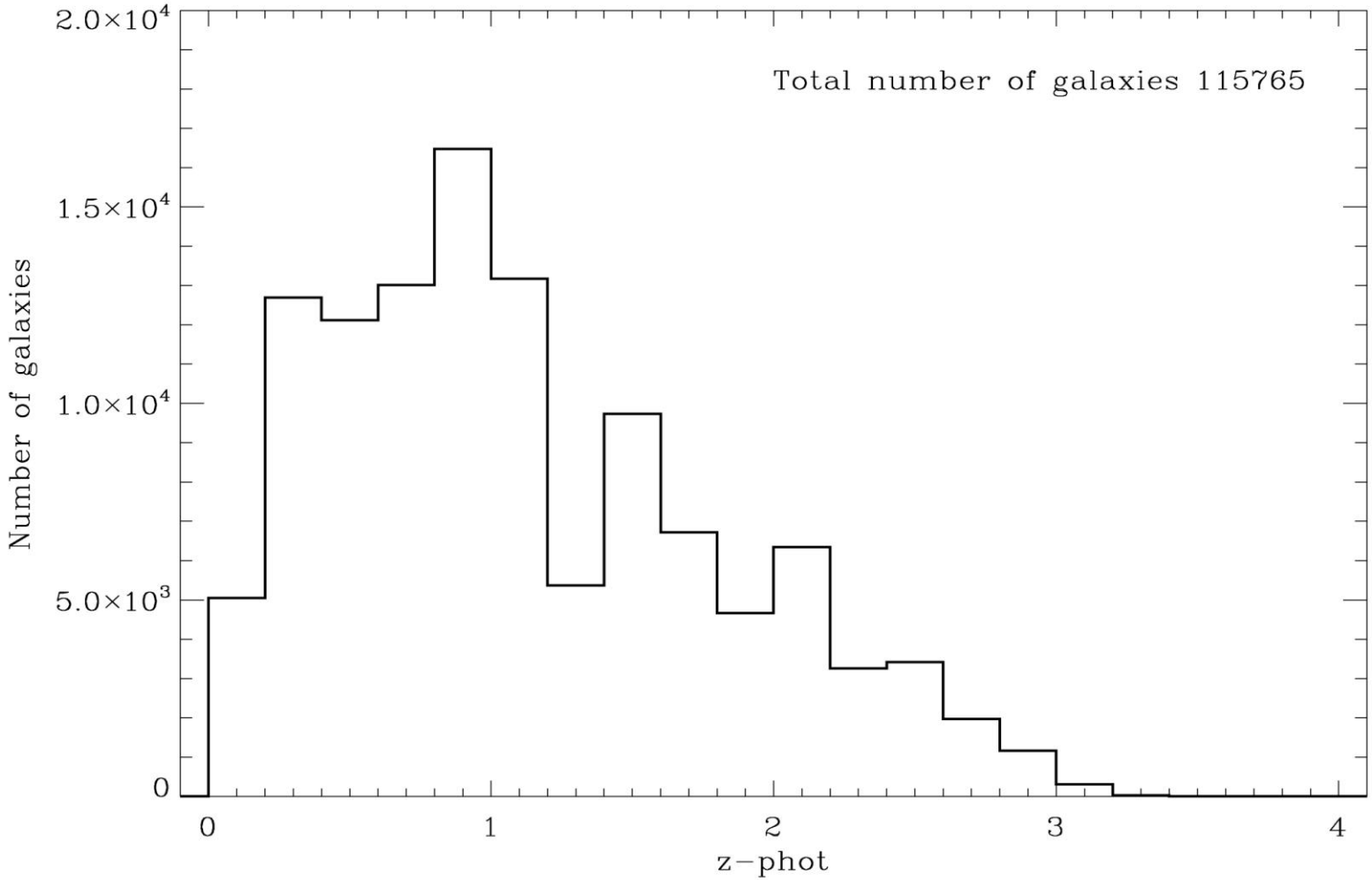
COSMOS (Subaru)
Color (V-I) magnitud (I)



Color(V-I) Color(I-Z) SUBARU



Sample vs z(phot)



Numerous targets… more general questions and plan.

- Are there classes (starformation feedback + - ?) where are them in the hydro-feedback plot?
- Are the classes grouped in z?
- Are the classes grouped in the sky (search for the best OSIRIS pointings on COSMOS field)
- Host (background) galaxy?
- Halpha mapping using OSIRIS TF (for the closer sample)
- MOS with OSIRIS GTC for modelling
- Better estimations of size, age, energy, redshift, mass…
- Use line profiles (if existing) to determine mass.
- Are the different clumps linked toguether?
- Use of the future data SHARDs (ESO-GTC) (Pablo Perez etal, UCM)
- High Spectral Resolution Spectra…wait for MEGARA.(Armando etal)
- Green peas (Ricardo etal)

Work TBD

Challenge for the future:

Starformation feedback tracing starburst@various z-

making use of: databases, observations with 8-10m class telescopes and our theoretical models, diagnosis plots…

THANKS