

OLD OPEN CLUSTERS in the Gaia-ESO Survey

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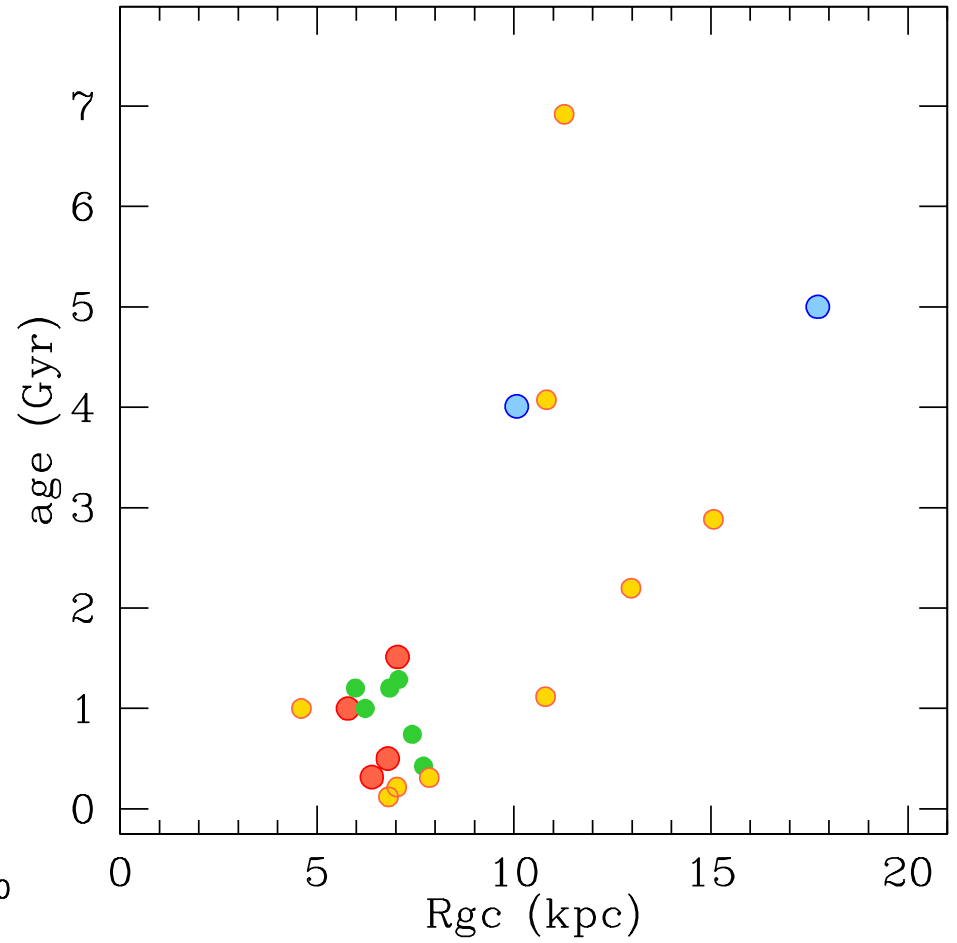
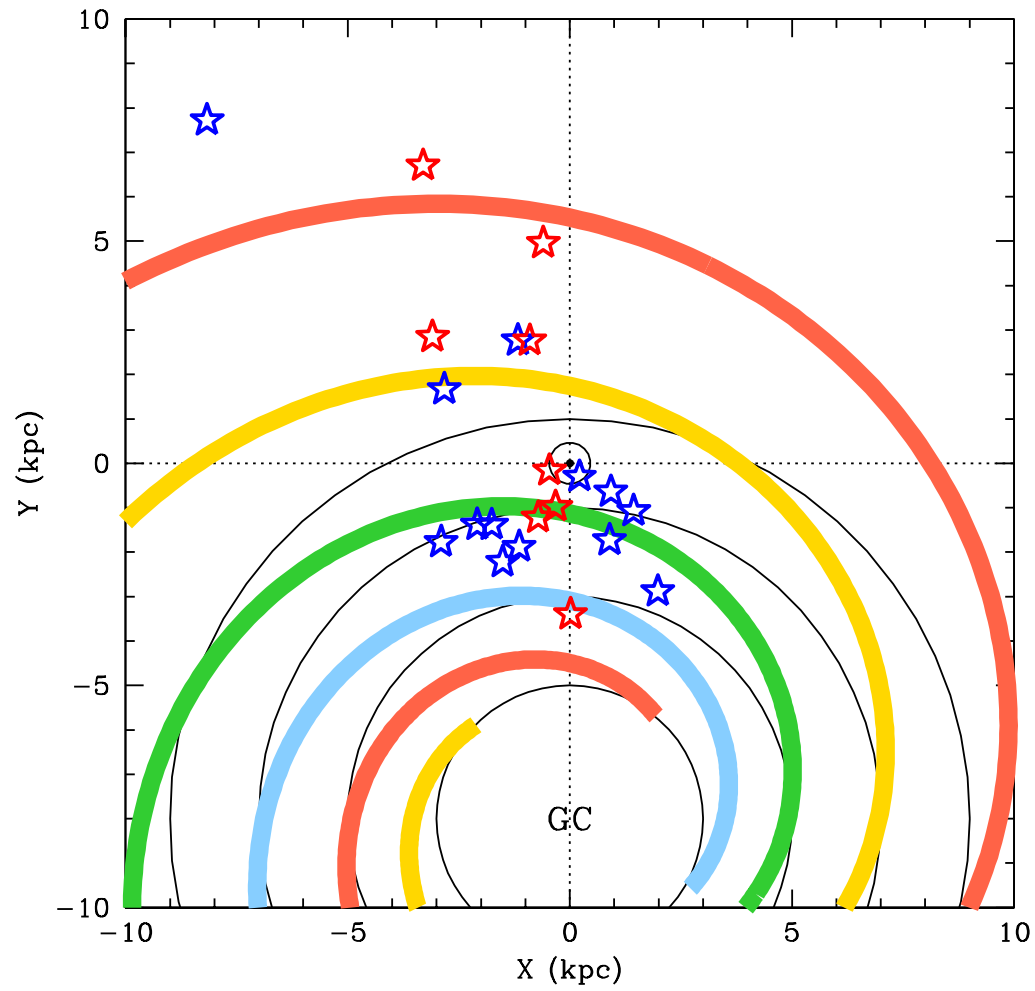


... please see also ...

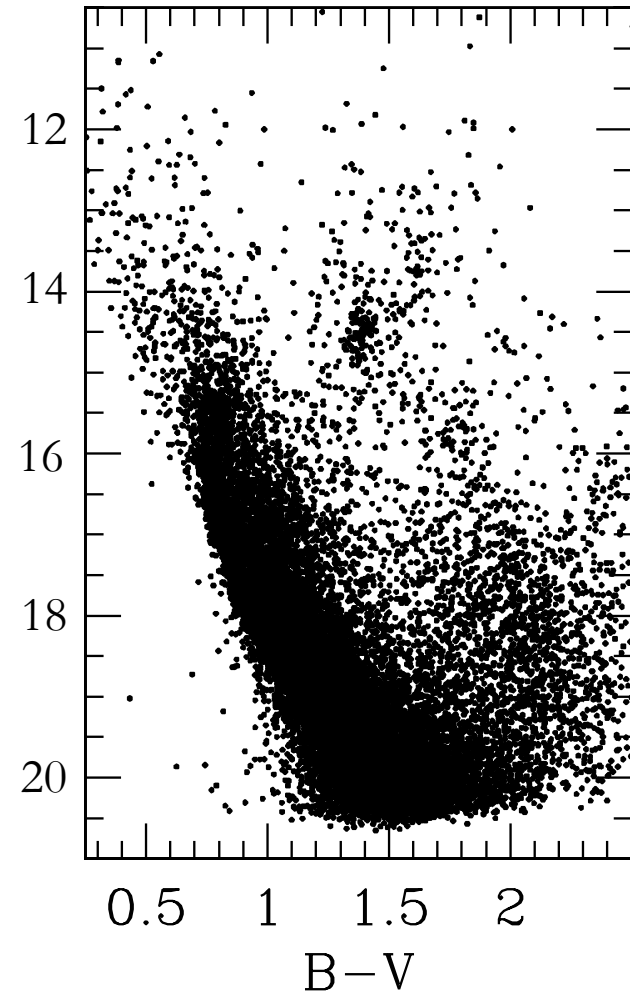
- **Randich** : *GES update on open clusters*
- **Magrini** : *Tracing the evolution of MW disc with open clusters*
- **Donati** : *GES data to constrain stellar evolutionary models*
- **Tautvaisiene** : *Open clusters as tracers of stellar evolution*
- **Smiljanic** : *Na and Al in giants & dwarfs: implications for stellar and chemical evolution*
- **Montalto** : *RV survey towards NGC6253 (poster)*

**Not much new on old open clusters in iDR2 vs iDR1
... waiting for iDR3 & iDR4**

	Cluster	Age	HR09b	HR15n	UVES	Nr.	
	Trumpler 20	1.5	(954)	525	42		
	NGC 4815	0.5	113	113	14		
	NGC 6705	0.3	166	860	59		u520/580
	Berkeley 81	1.0	118	189	14		
	Berkeley 25	5.0	71 (+10)		7 (+3)		
	NGC 2243	4.0	-	690 (+109)	27 (+7)		
	NGC 6633	0.4	-	1182+644	35+50		u520/580
	Berkeley 44	1.3	-	82	7		
	NGC 6802	0.7	67	90	14		
	Pismis 18	1.2	51	92	13		
	Trumpler 23	1.0	56	73	14		
	NGC6005	1.2	-	556	20		
	Berkeley 21	2.2	in prep	in prep	in prep		
	Berkeley 31	2.9	-	696	14		
	Berkeley 36	7.0	-	758	14		
	Trumpler 5	4.0	-	1132	28		
NGC 2420	1.1	in prep	in prep	in prep			
NGC 6259	0.2	tbd	tbd	tbd			
NGC 3532	0.3	tbd	tbd	tbd			
NGC 6067	0.1	tbd	tbd	tbd			

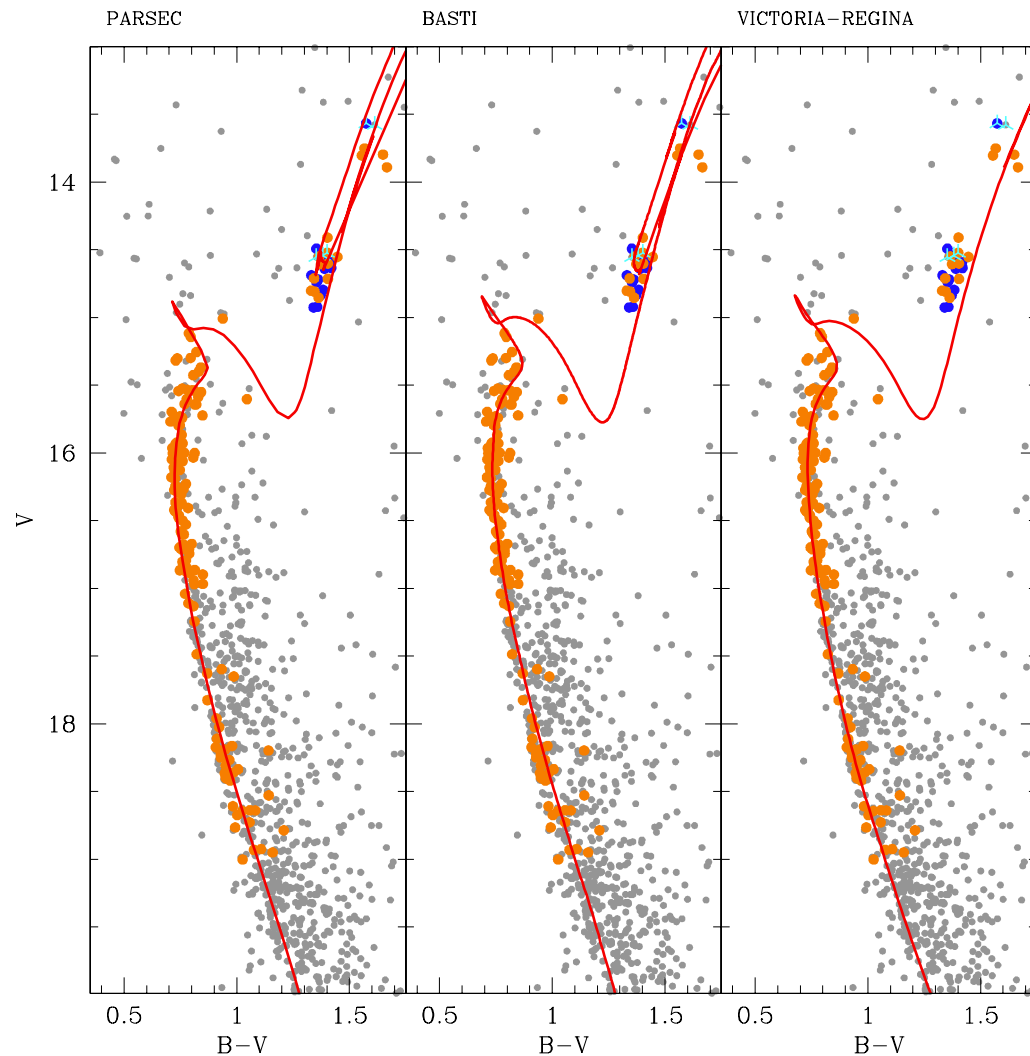


iDR1: Tr 20, NGC 4815, NGC 6705

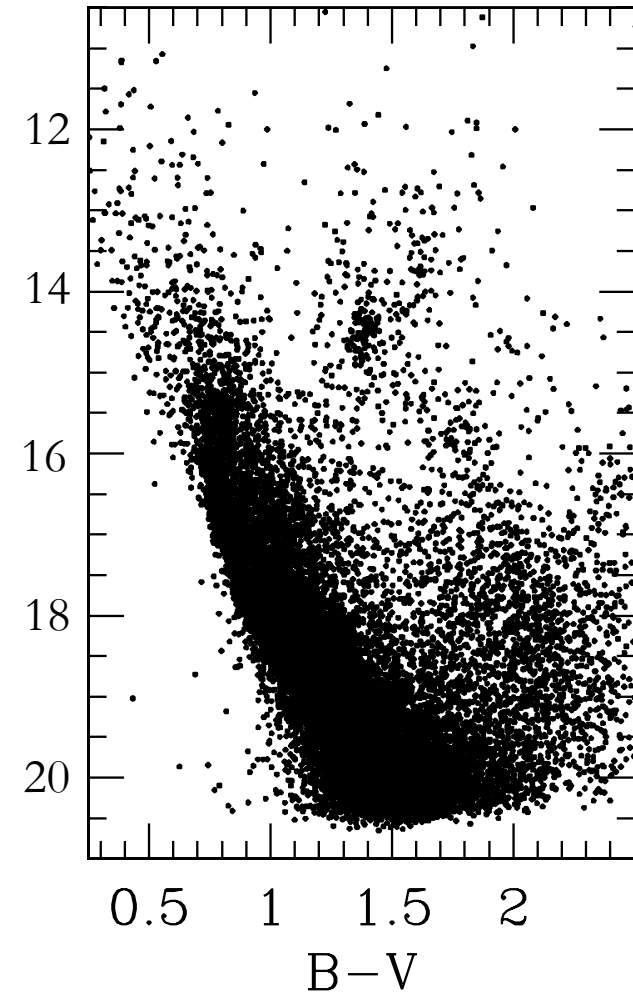


Carraro+2010

iDR1: Tr 20, NGC 4815, NGC 6705



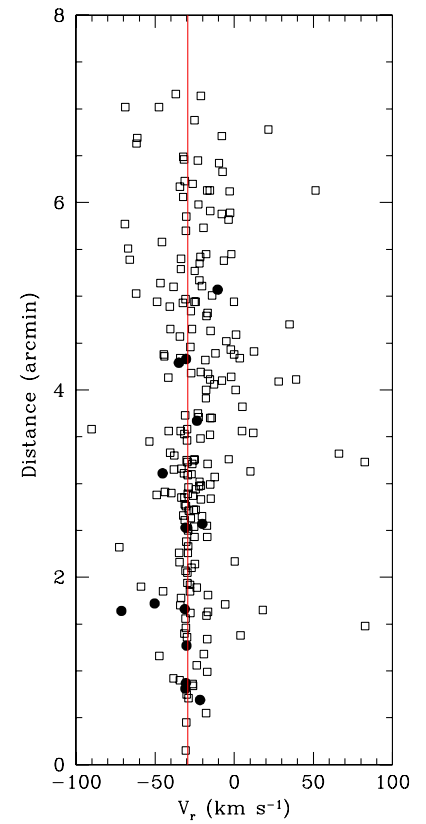
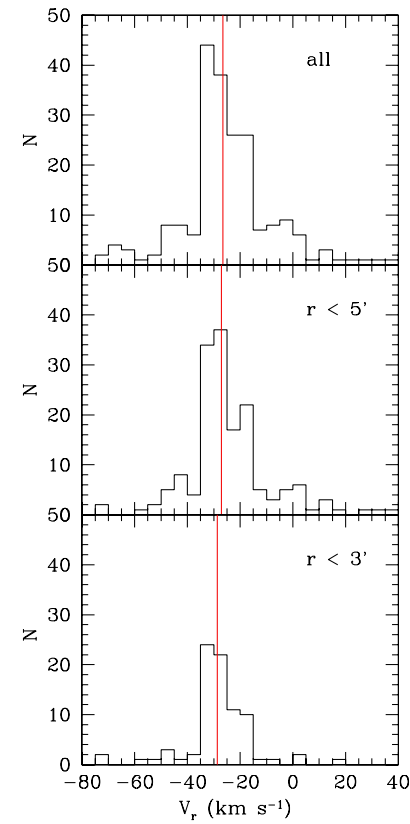
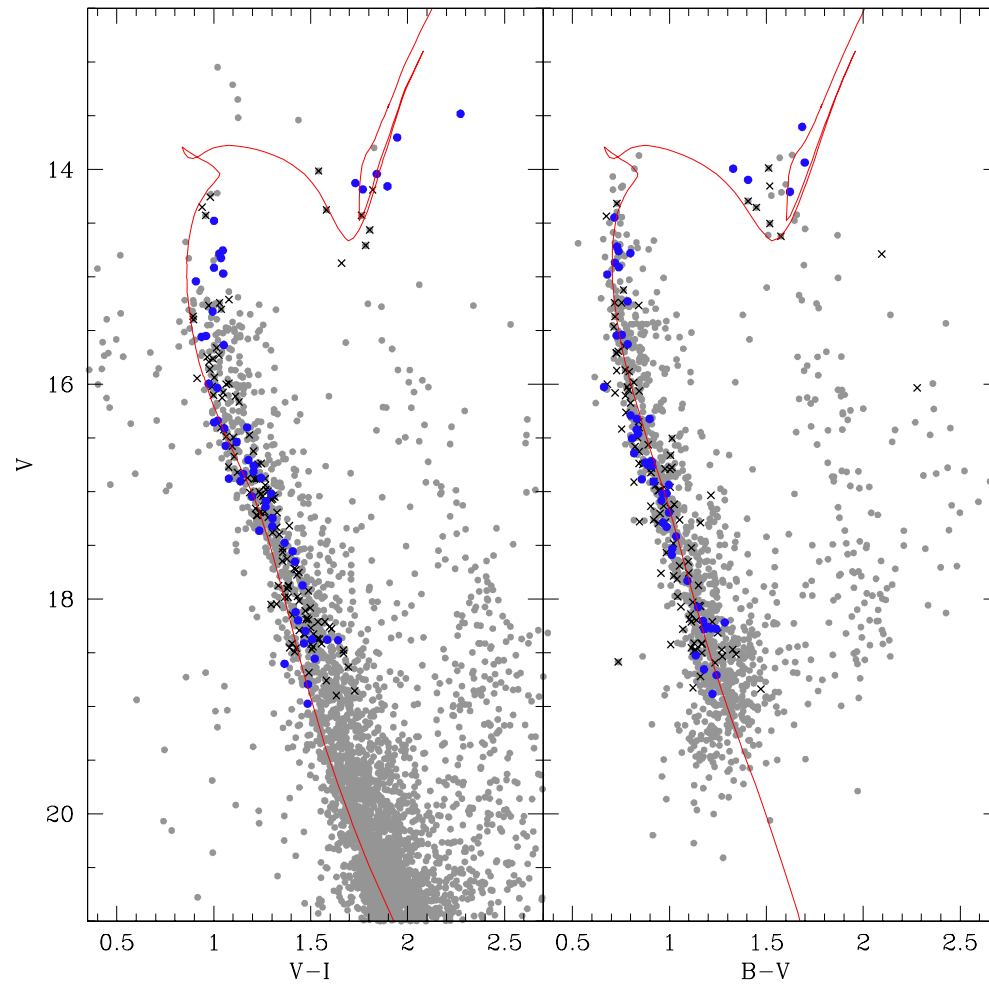
GES - Donati+ 2013 : ~38% M



Carraro+2010

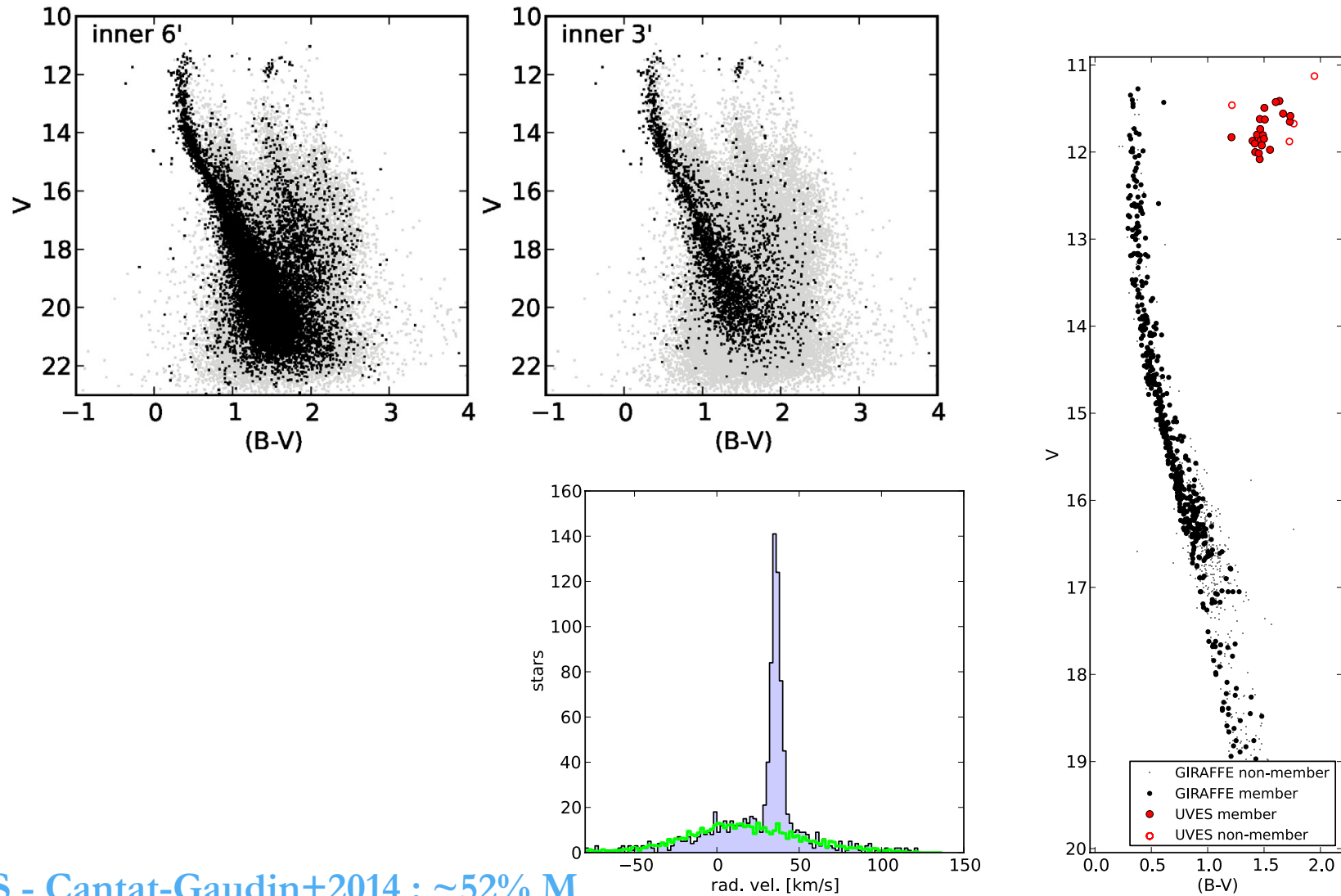
iDR1: Tr 20, NGC 4815, NGC 6705

PARSEC



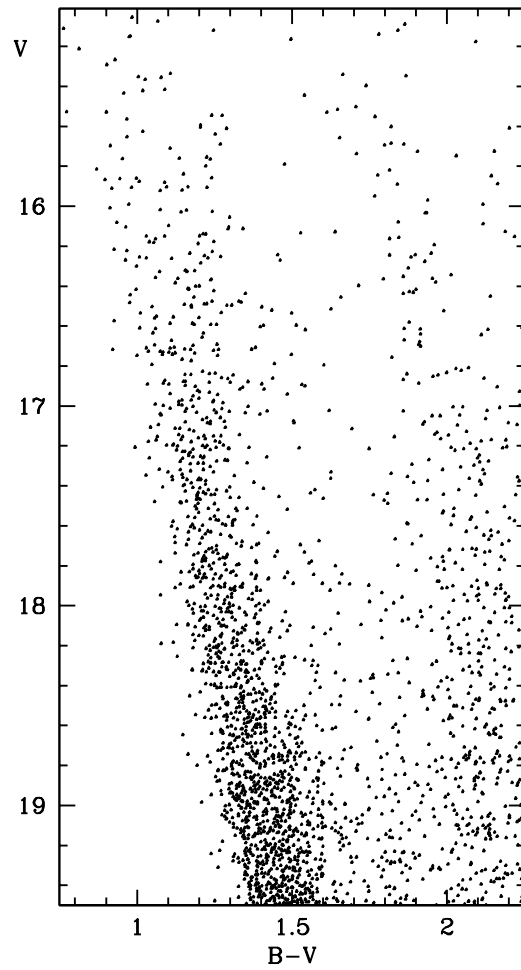
GES - Friel+ 2014 : ~30% M

iDR1: Tr 20, NGC 4815, NGC 6705

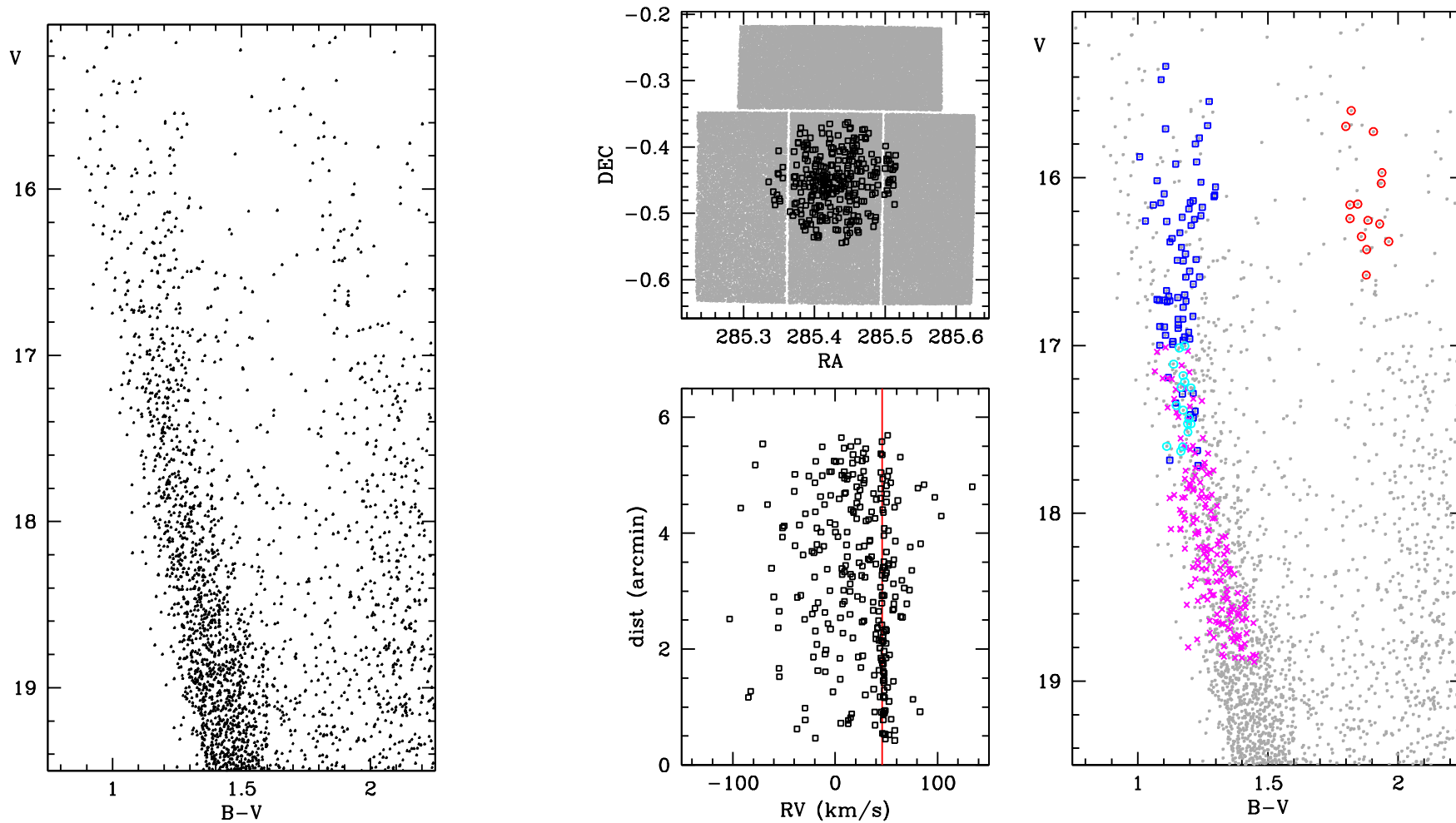


GES - Cantat-Gaudin+2014 : ~52% M

Berkeley 81 (iDR2)



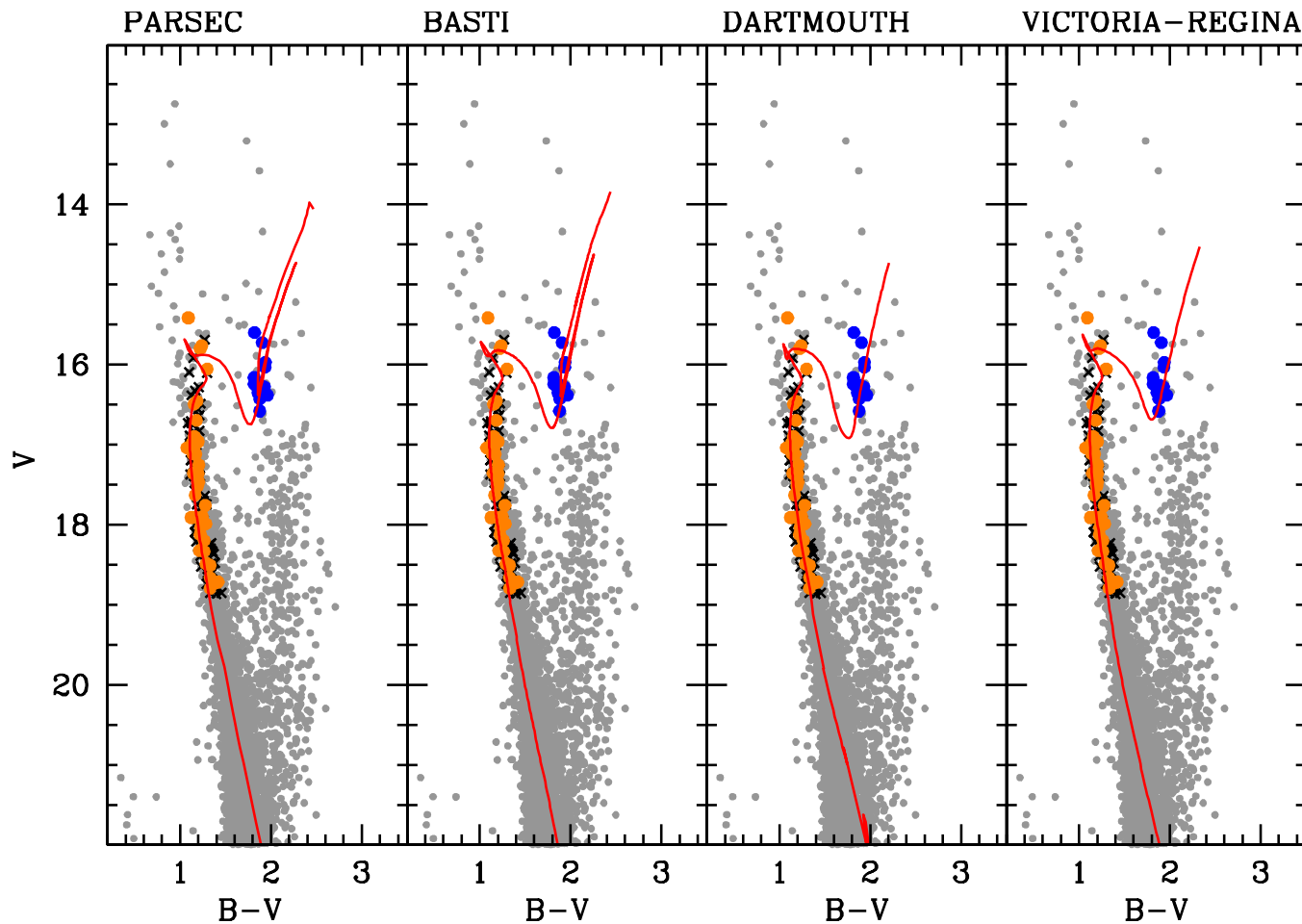
Berkeley 81 (iDR2)



Donati+2014

Hayes & Friel 2014 ; GES - Magrini+ in prep.

Berkeley 81 (iDR2)



assumed (iDR2)
[Fe/H]=+0.23

PARSEC:
age=0.98±0.1 Gyr
E(B-V)=0.83±0.02
(m-M)₀=12.72±0.10

BASTI:
0.75 / 0.86 / 12.85

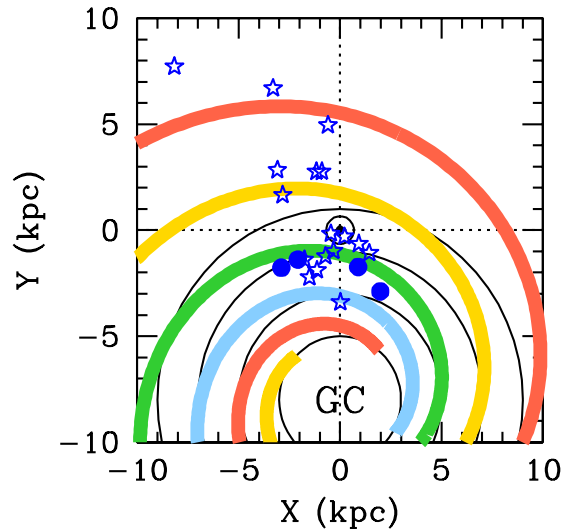
Dartmouth:
0.90 / 0.84 / 12.72

Victoria-Regina:
0.90 / 0.85 / 12.75

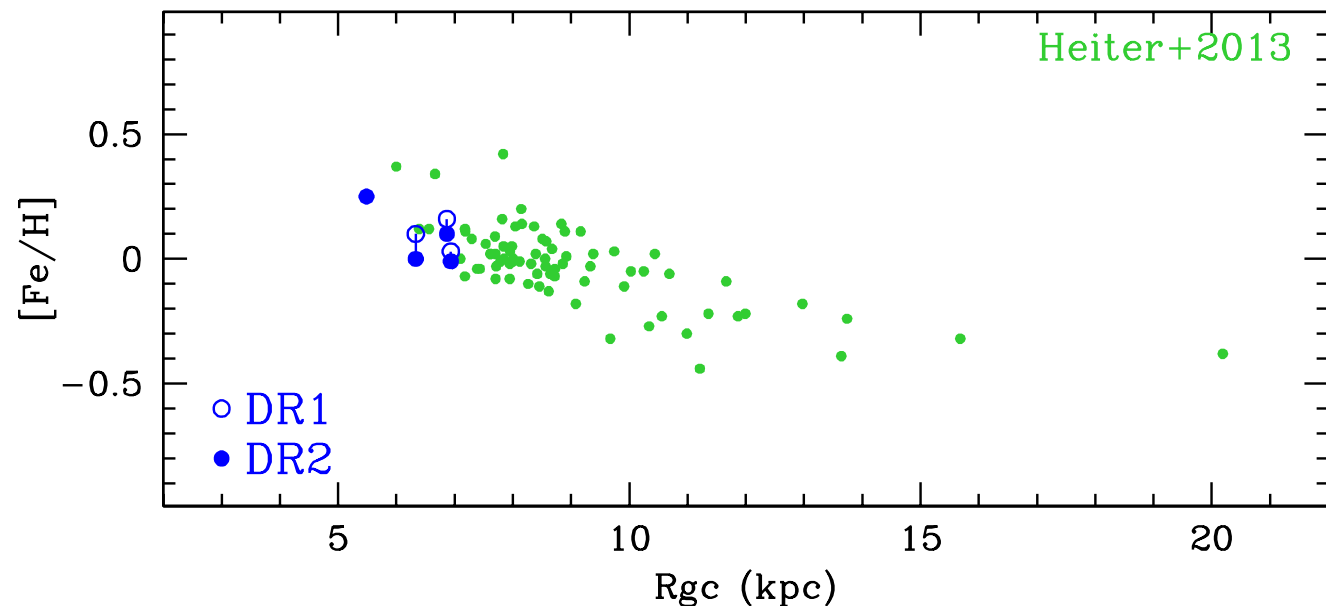
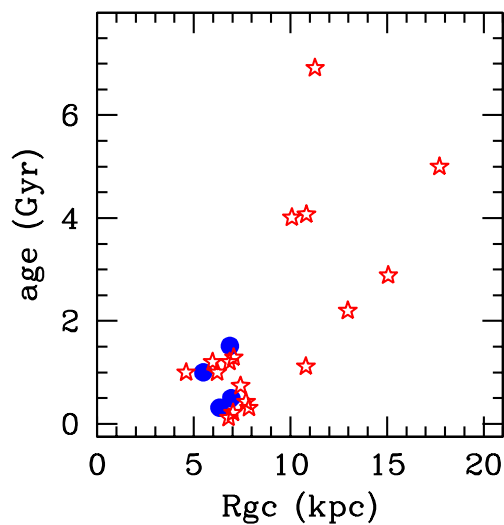
~25% M

cf Donati+2014: age=0.9, E(B-V)=0.91, (m-M)₀=12.4, Z=Z_⊙

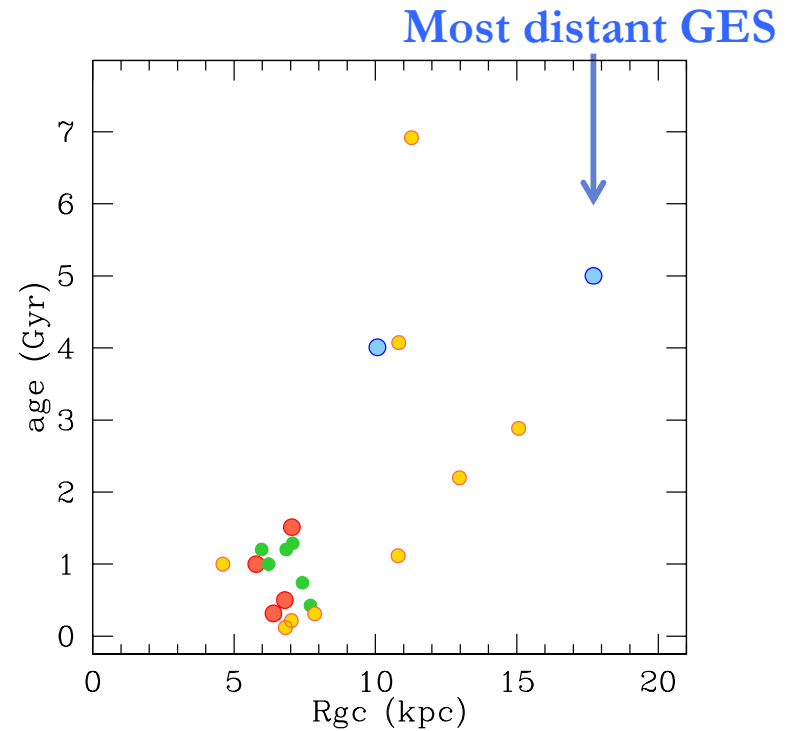
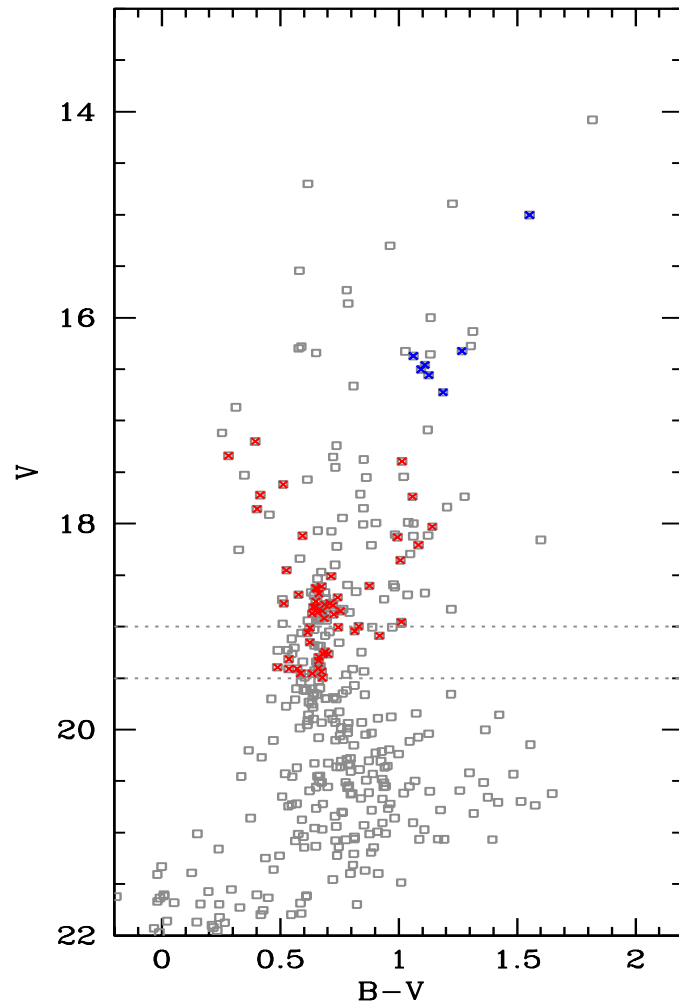
The 4 DR1,2 inner disk old clusters



OC	age	R _{gc}	RV	[Fe/H] _{dr1}	[Fe/H] _{dr2}
Tr20	1.5	6.9	-40.5	+0.16 (13)	+0.10 (41)
N4815	0.5	6.9	-30.2	+0.03 (5)	-0.01 (5)
N6705	0.3	6.3	+34.5	+0.10 (21)	+0.00 (27)
Be81	1.0	5.5	+47.6		+0.23 (13)



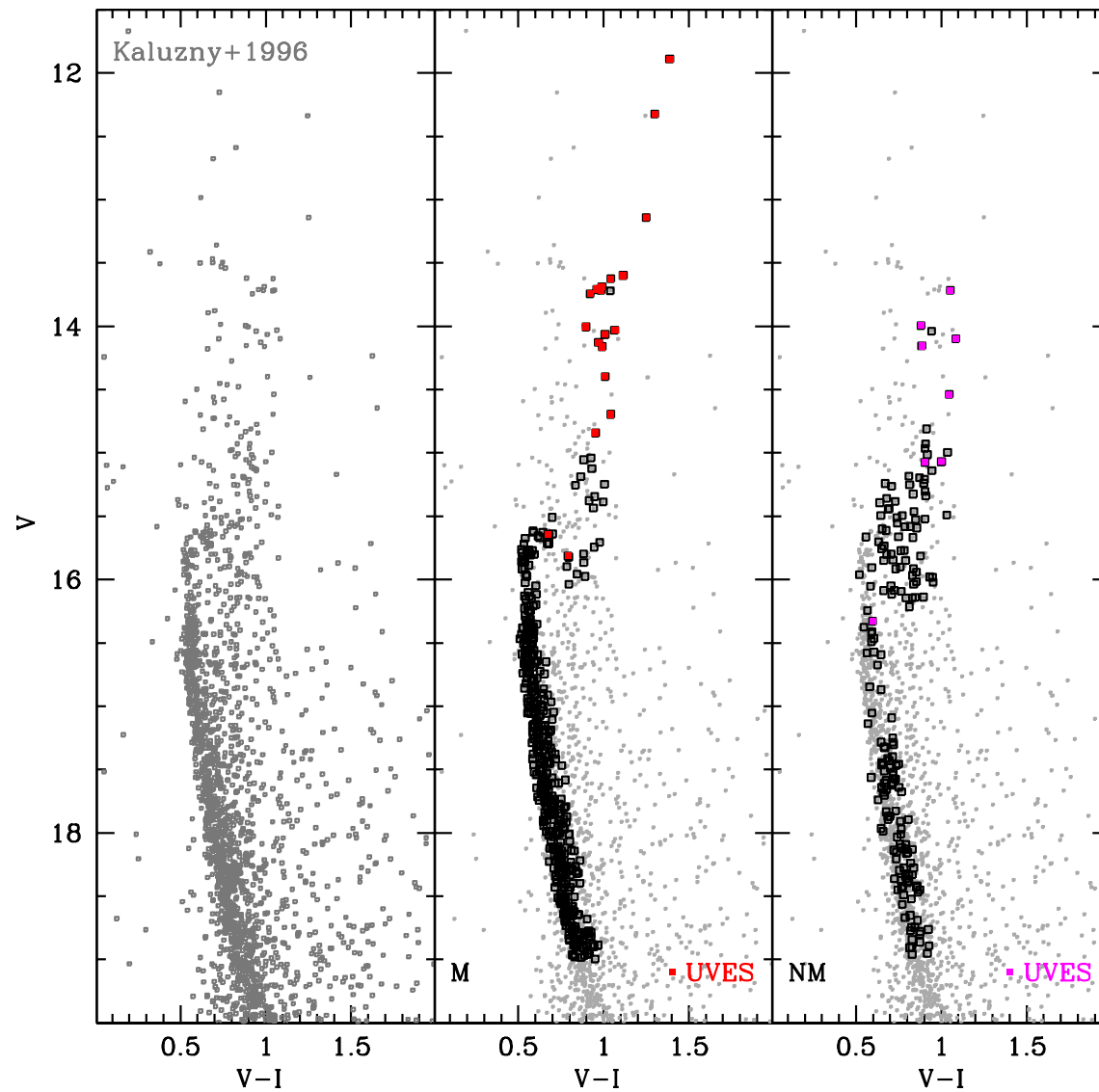
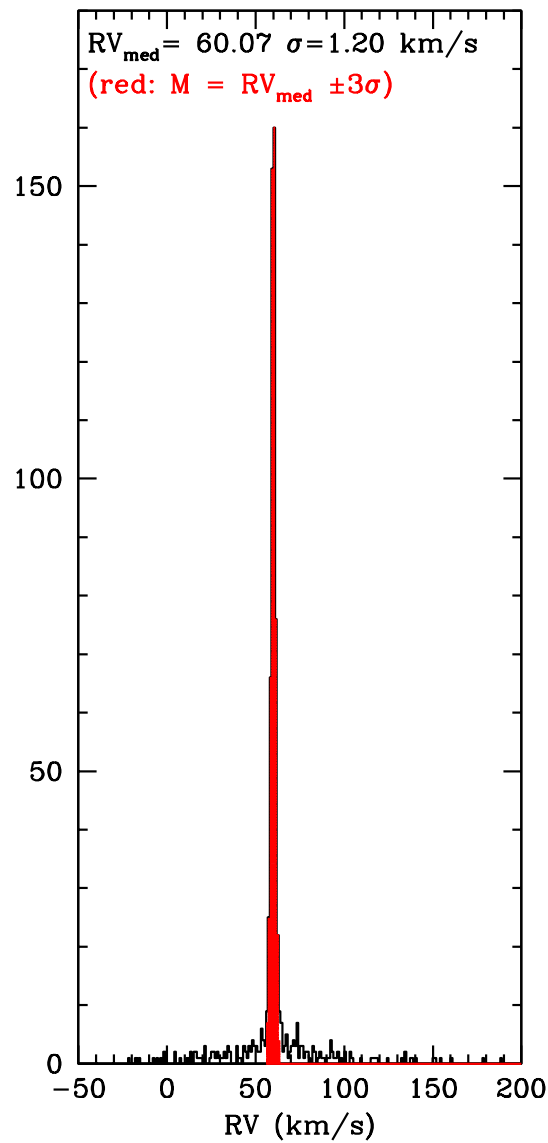
Berkeley 25 (iDR3)



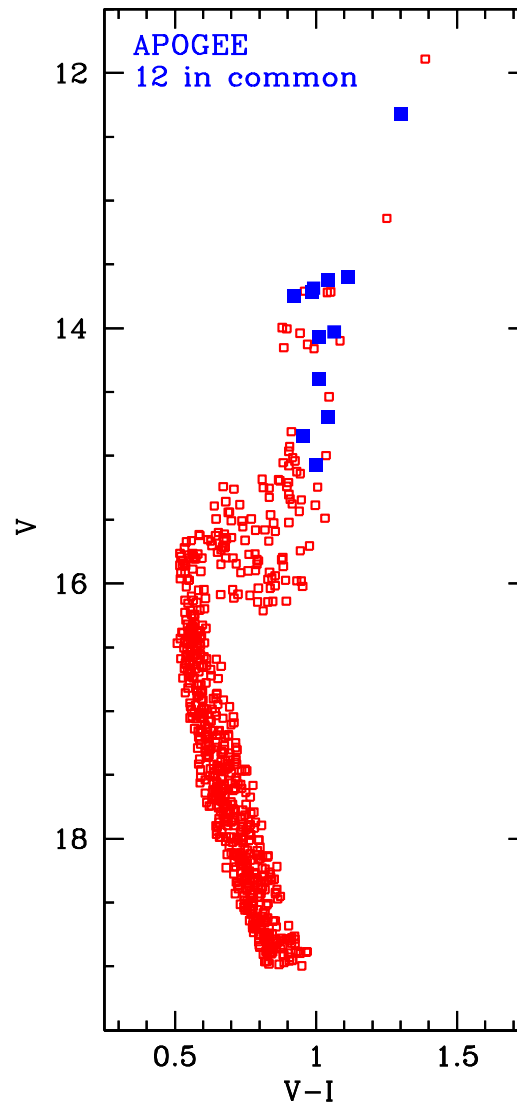
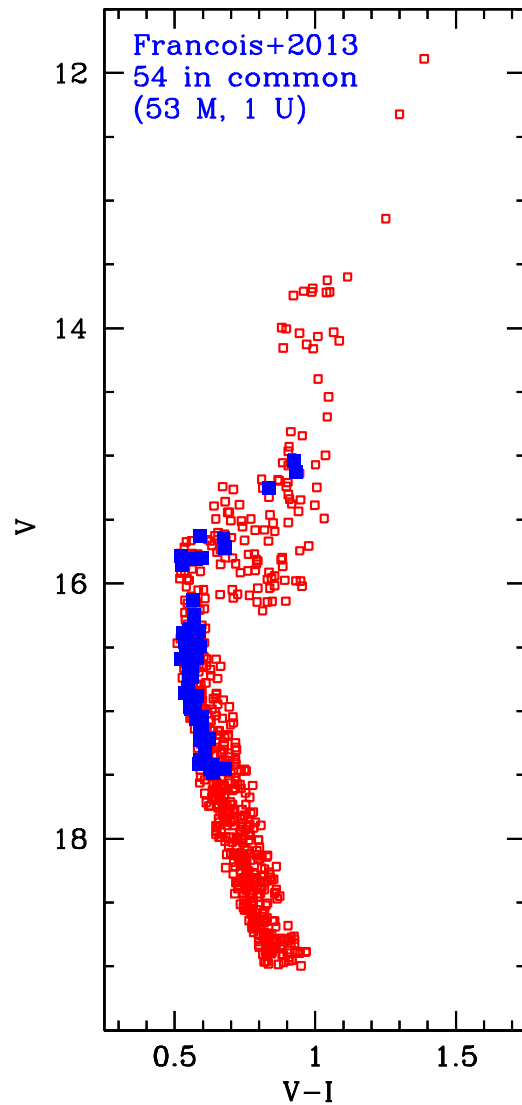
EPInArBo : $[\text{Fe}/\text{H}]=-0.3$ (rms 0.1 ; 7 stars)

Carraro+2005, 2007 : $[\text{Fe}/\text{H}]=-0.20$ (3 stars) ; age= 5 Gyr, $E(B-V)=0.11$, $(m-M)_0=15.60$

NGC 2243 iDR3/4



NGC 2243 iDR3/4



+ archive FLAMES
+ APOGEE

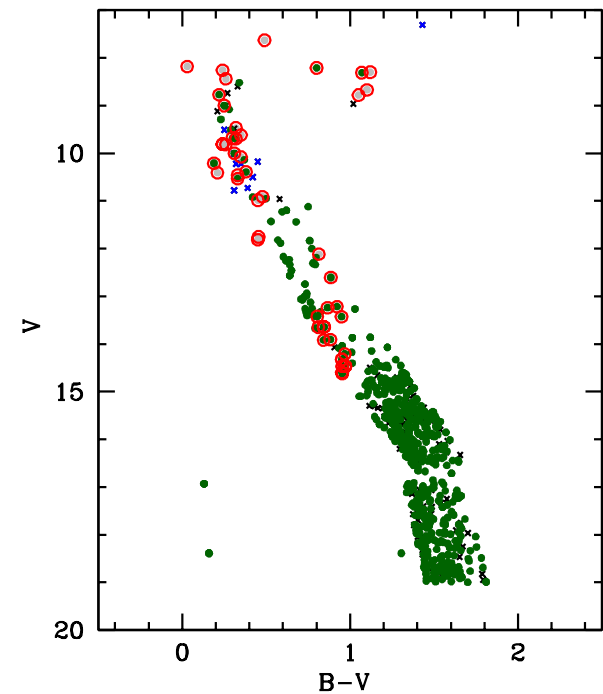
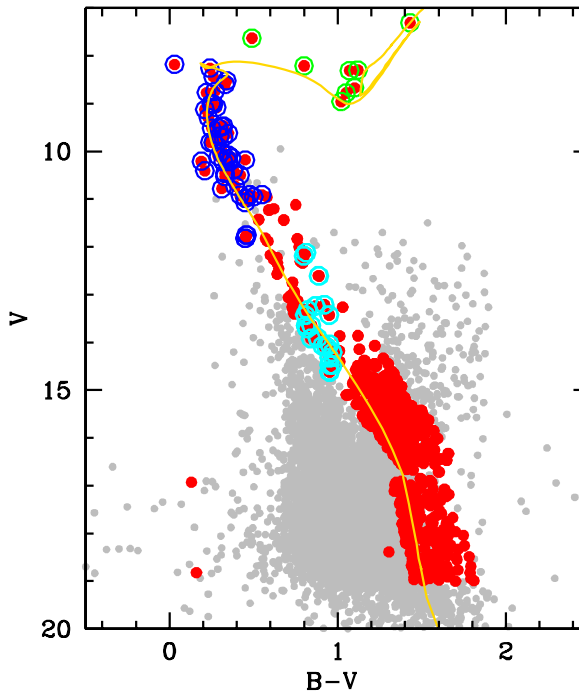
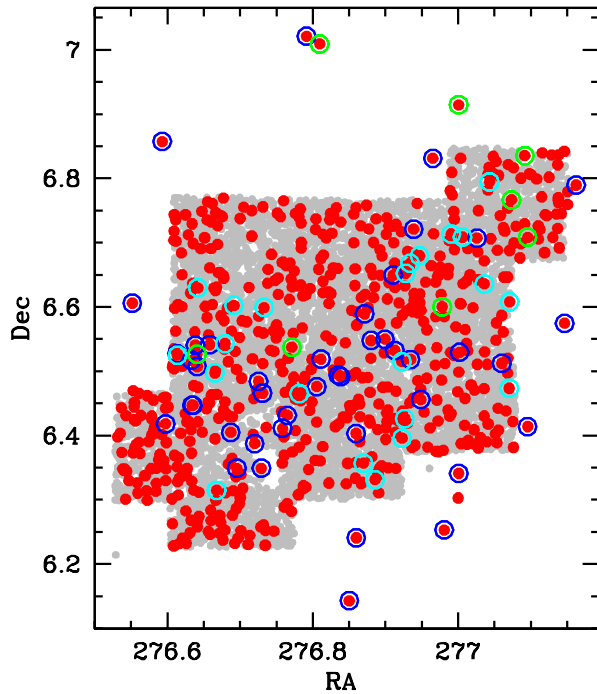
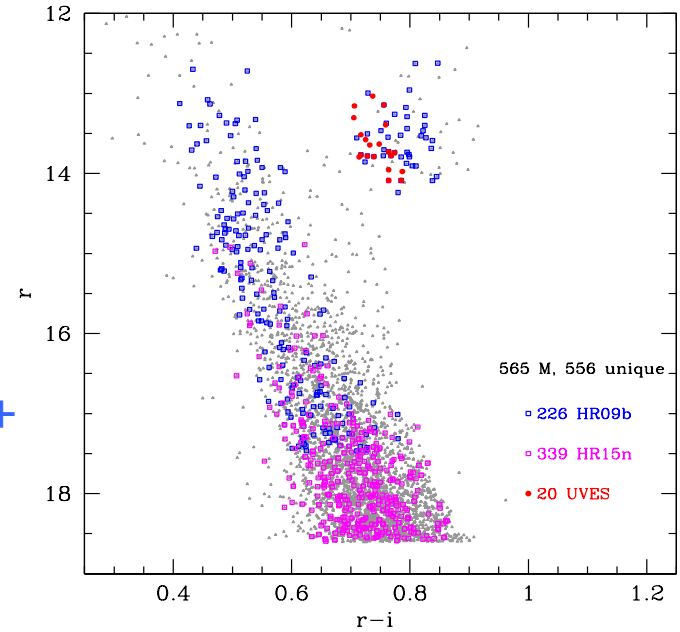
EPInArBo :
[Fe/H]=-0.51 (rms 0.06 ; 23 stars)

NGC 6633 & NGC 6005



Inner disk, VPHAS+

Nearby, CoRoT, WDs



... and more to come !

Thank you
(& some advertising)

IAUS 317 at the 2015 IAU GA

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IAU Symposia

IAUS 317: The General Assembly of Galaxy Halos: Structure, Origin and Evolution

Start date/time
August 3, 2015

End date/time
August 7, 2015

Place
Honolulu,
United States

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XXIX GENERAL ASSEMBLY
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<http://www.iau.org/science/meetings/future/symposia/1124/>

http://www.eso.org/~marnabol/IAU317_index.html