Unravelling star formation history in the Andromeda galaxy halo(Subaru/HSC)

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1.Purpose & Background

M31 halo：Lots of old and low-metallicity stars

➡Stars of halo retain information of galaxy formation in early time.

Importance to study genuine halo without contaminations of accretions (galaxy/globular cluster)

Unraveling star formation history(SFH) in early time by analysing DEEP_FIELD1 region.

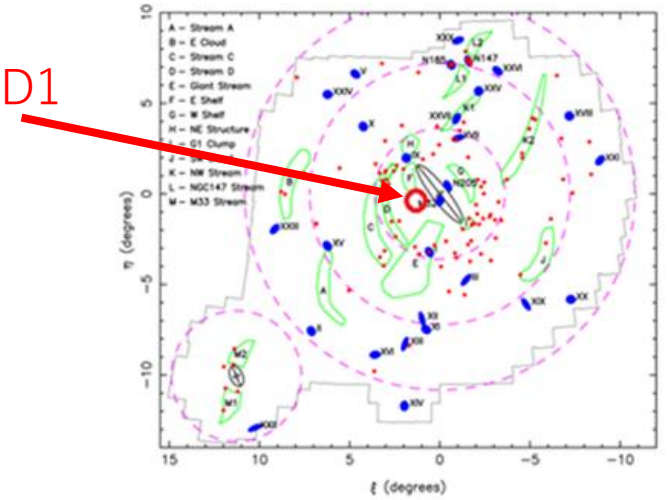

Fig.1 Observed field in M31 Halo

2.Data

Table1 Data Set

Filter	Exposure time[sec]
HSC-G	6×400, 4×30
HSC-I2	28×240, 4×30

3.Result

Color-Magnitude Diagram and Stellar Density

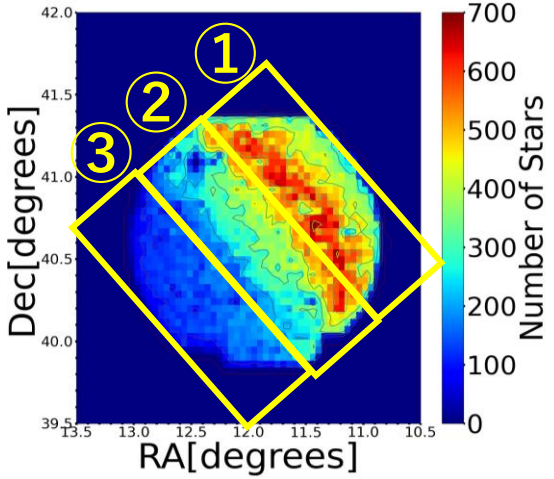

Fig.2 Stellar Density

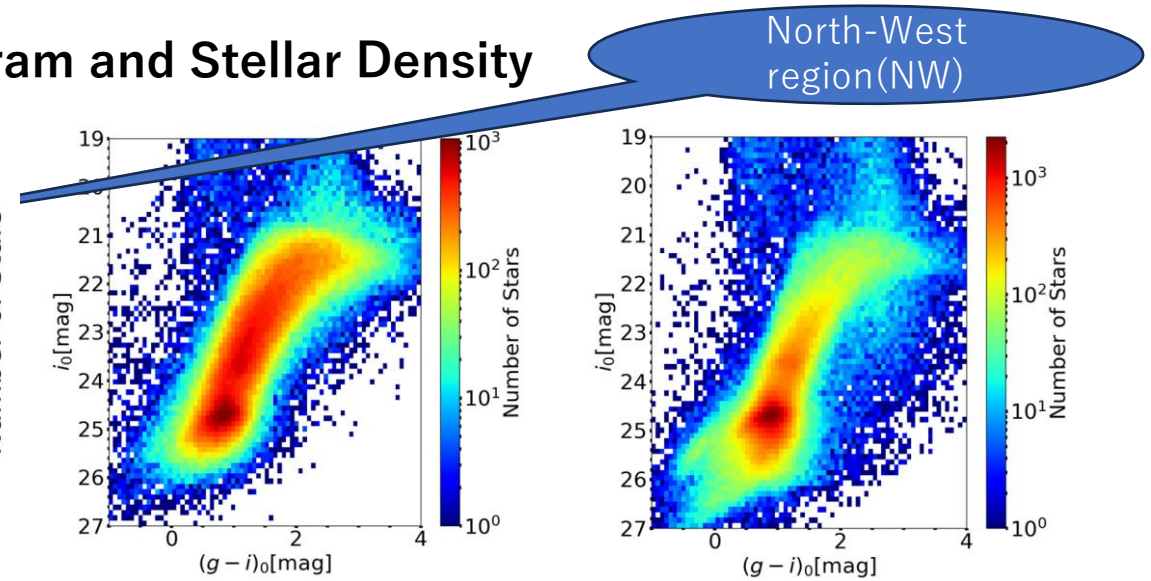

Fig.3 ① Region

Fig.4 ② Region

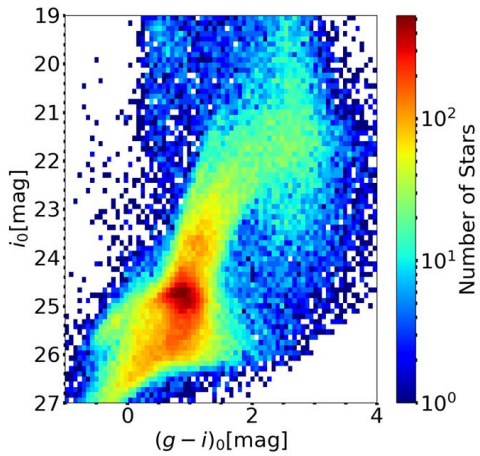

Fig.5 ③ Region

- NW region : Shallow detection
- Red Clump stars are clearly seen

in all regions.➡Possibility to determine SFH

Estimation age and metallicity

Various ages and metallicities(5~13Gyr and [Fe/H]=-3.20～-1.05)

➡Low metallicity and old stars dominate in DEEP_FIELD1.

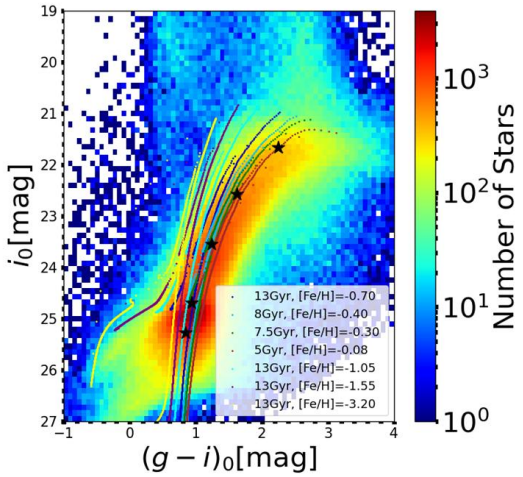

Fig.6 Estimation age and metallicity