

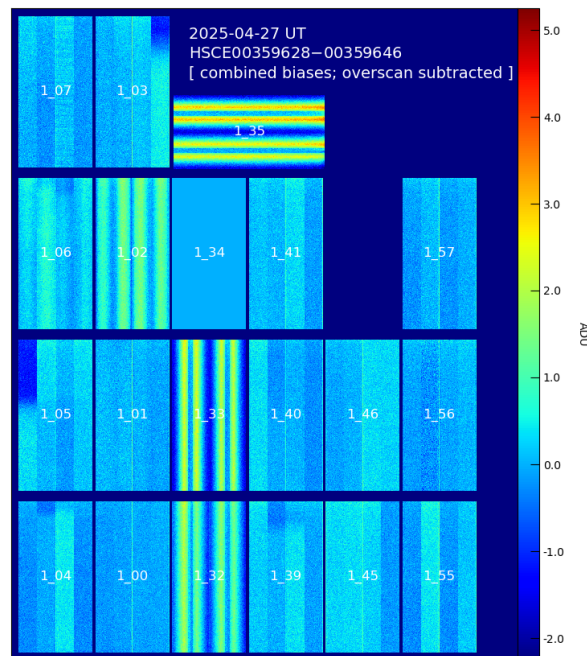
HSC CCD 1_34: read-out anomaly in April 2025

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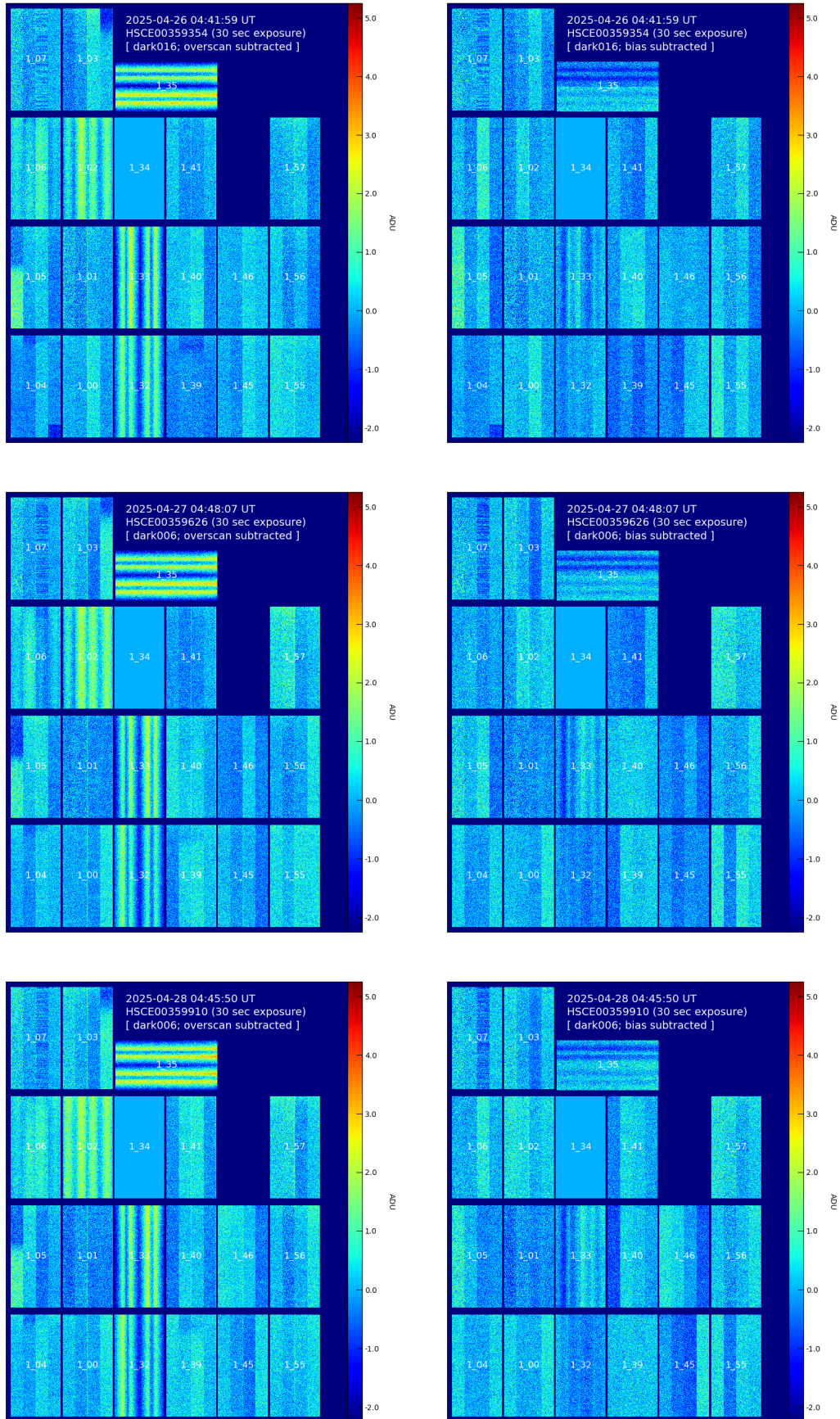
- Read-out anomaly has occurred in CCD 1_34 (DET-ID = 021) since the night of April 25th, 2025 HST.
- This CCD has suffered read-out failure over the entire surface.
- In addition, several of the neighbor CCDs (especially 1_02; #028, 1_32; #019, 1_33; #020, and 1_35; #101) are affected with stripe-like noises of which count level ($\sim 3\text{--}4$ ADU) and pattern seem to be almost constant on each CCD.
- This kind of anomaly has been seen a couple of times in the past three years though those were only temporary. We are not yet sure of the cause.
- This issue continued until the end of the HSC observing run in April–May 2025.

Bias images¹

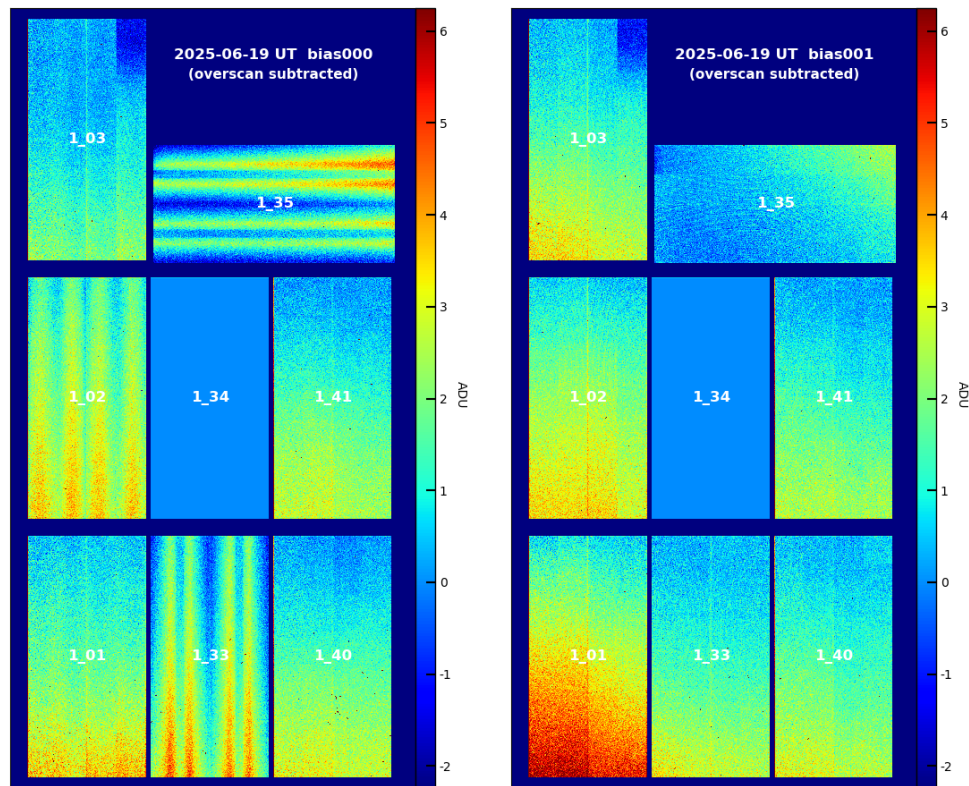


¹Combined bias frames (HSCE00359628-00359646) obtained on the night of April 26 HST.

Dark frame images (left: overscan subtracted; right: bias images subtracted) taken on April 25–27 HST.



- After the observing run in April–May, HSC was warmed up to room temperature and removed from the prime focus unit (POpt2).
- We cooled HSC down again and performed a read-out test in the evening of June 18 HST.
- Unfortunately, CCD 1_34 images were still blank. Stripe-like noises on the neighbor CCDs also appeared.
- We tried to change the read-out voltage for this CCD, but it did not work.
- Such noises on the neighbor CCDs was confirmed to have disappeared when CCD 1_34 was powered off.
- An additional read-out test was performed after HSC was reinstalled into POpt2 and cooled down again, but there was still no sign of recovery.
- We have finally decided to keep CCD 1_34 powered off (in the same way as CCD 1.47²) from the beginning of HSC S25A July run to prevent occurrence of noises on the neighbor CCDs..



Bias frames taken before/after CCD 1_34 was powered off (the left and right images, respectively)

²Readout for CCD 1.47 has been suspended since February 2018 due to its serious anomaly.