Automated operations in Changchun station Part II : **Plans**

Zhipeng LIANG, Chengzhi LIU, Xingwei HAN, Cunbo FAN, Xue DONG

For 2017 ILRS Technical Workshop in Riga Latvia

Outline: Plans

- Target screen-locking
- Laser beam screen-locking
- Echo rate optimizing
- Experience implementing automation

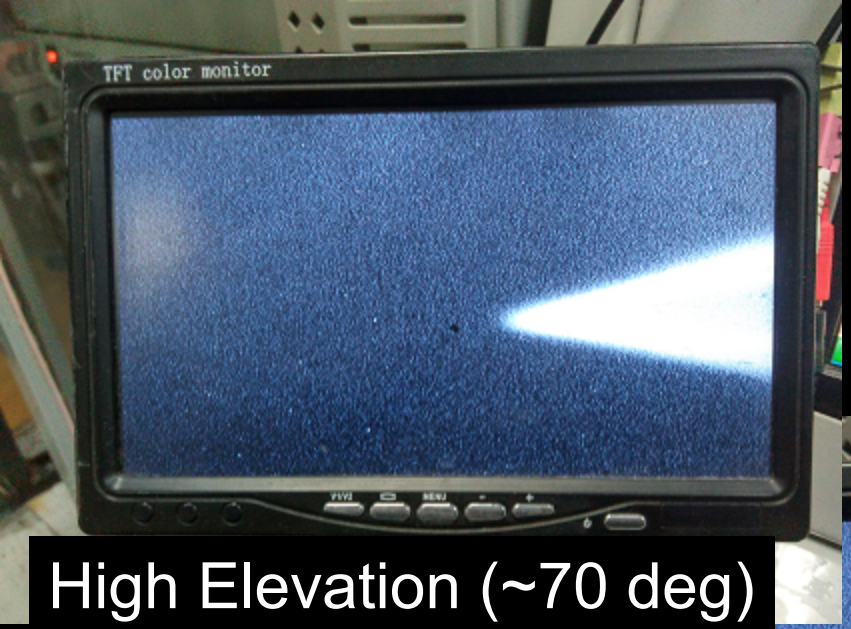
Target screen-locking

- Target isolation
  - Use spectral filter to block laser backscatter
  - Discriminate from background
- Point ahead
  - Important for far targets
  - Let laser point ahead from target
  - Amount to be determined from prediction or line search

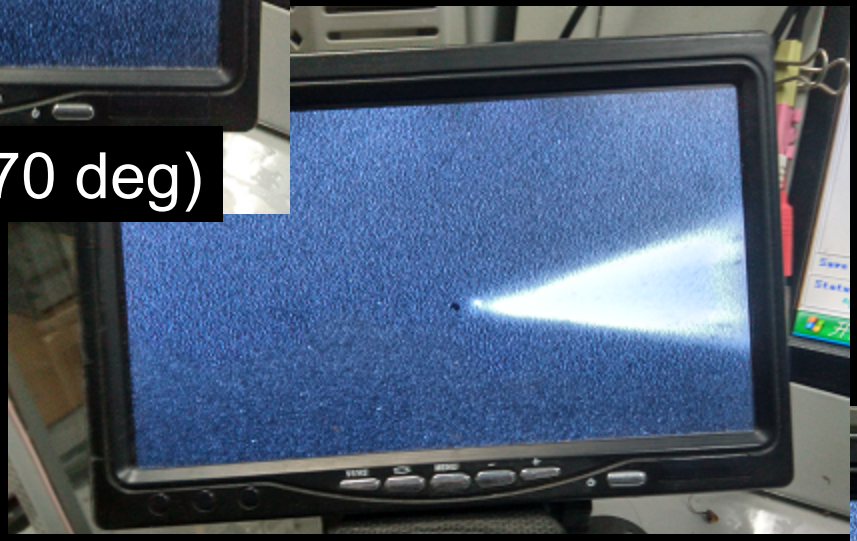
TFT color monitor
V1/V2
MENU

Laser beam screen-locking

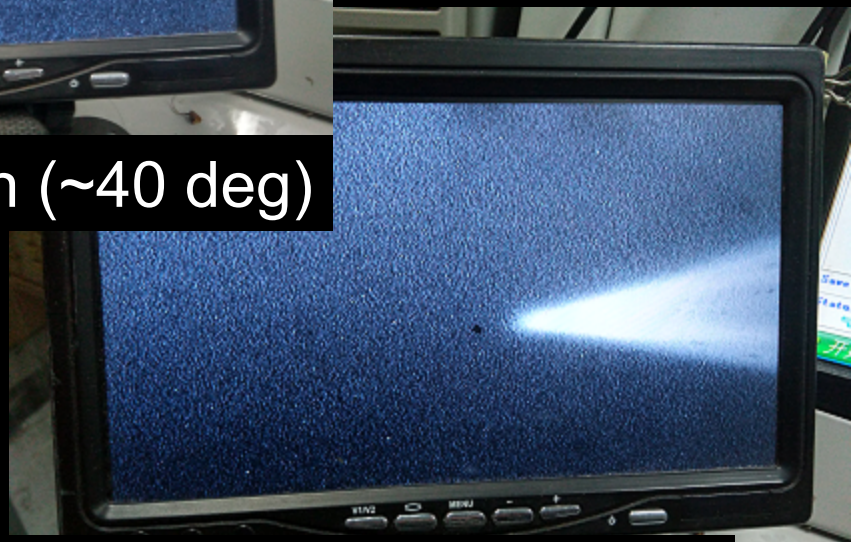
- Beam isolation
  - Spectral band-pass filter @532nm
- Determine beam tip
- Beam shape
  - Changes by elevation (atmosphere length)
  - Changes by atmosphere state



High Elevation (~70 deg)



Medium Elevation (~40 deg)

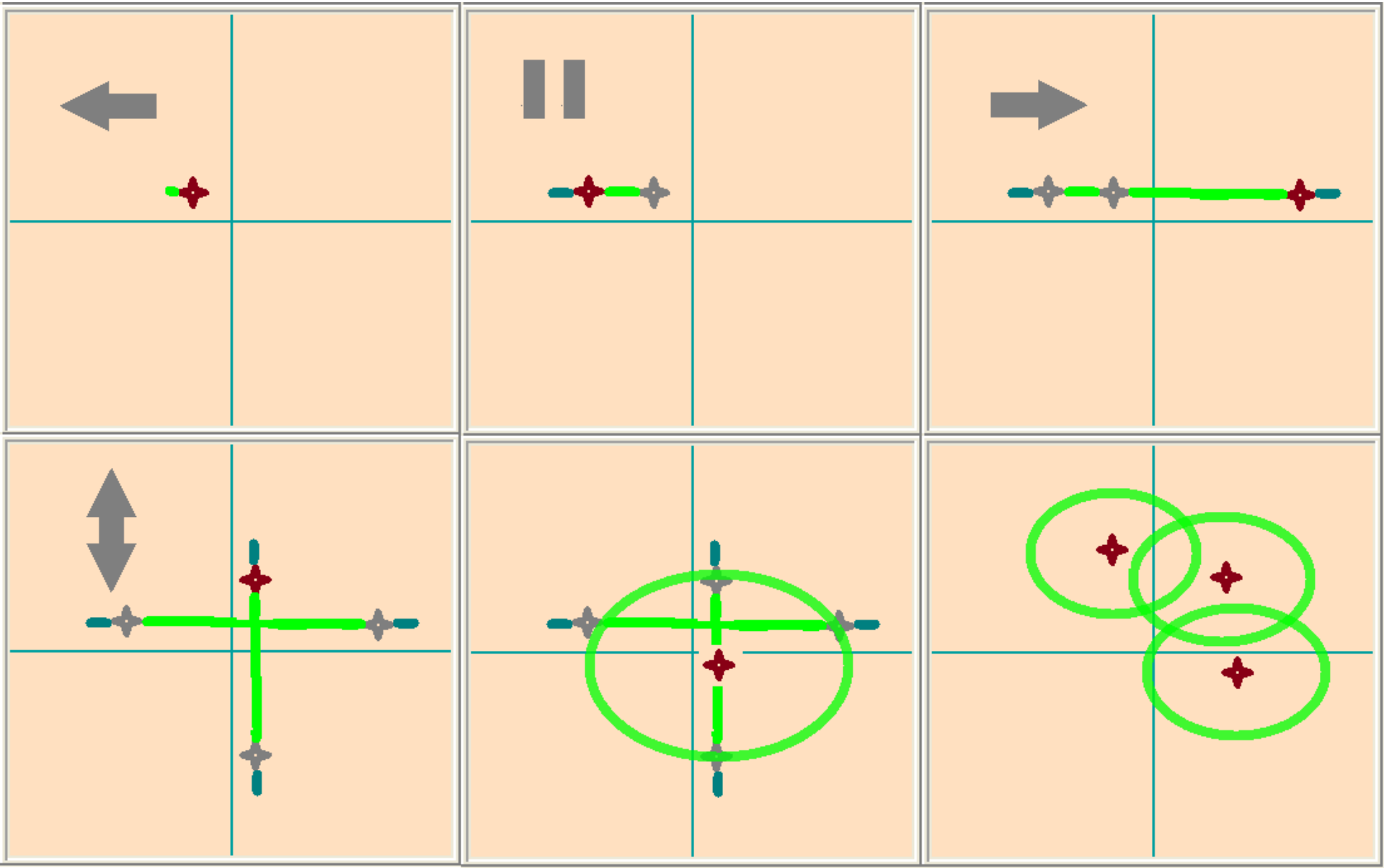


Low Elevation (~20 deg)

Echo rate optimizing

- Target drifts by pointing error
- Inspired by Beam Divergence Measurement Procedure
- Require beam locking
- Offset target in laser-lit area
  - Laser-lit area is ellipse in Az-El offset frame
  - Find laser beam center repeatedly
  - Follow and stay in the ellipse

Echo rate optimizing



Experience implementing automation

- Steps to develop new scheme
  - First try it by hand
  - Let everyone do it, form procedure
  - Make computer software
- Make it a sport!

Thank you!

Paldies

谢谢