

# JAK ZPRACOVAT JASNÉ BOLIDY?



**PROGRAM  
CEZHRANIČNEJ  
SPOLUPRÁČE**  
SLOVENSKÁ REPUBLIKA  
ČESKÁ REPUBLIKA



**EURÓPSKA ÚNIA  
EURÓPSKY FOND  
REGIONÁLNEHO ROZVOJA**  
SPOLOČNE BEZ HRANÍC



**FOND MIKROPROJEKTŮ**

# MAIN TOPICS

## Very bright fireballs with massive chip saturation



## Bright fireballs through clouds



# PROCESSING PROCEDURE

## Export image sequence from video

- using VirtualDub software, etc., output format \*.bmp

## Stacked stars mask

- from images without fireball or from another video (same or different night)
- using Startrails software, etc.
- gray scale inversion when needed (bright background, etc.)

## Stacked fireball path image (beginning and end of path)

- only images without explosions or without scattering of light by clouds
- using Startrails software, etc.

## Combination of stacked images – fireball path and stars mask

- using Adobe Photoshop software, etc.

## Astrometry of resulting image

- using AstroRecord software, etc.
- ideal for astrometry – over 25 reference stars around fireball path
- photometry from UA analysis

# ASTRORECORD

Exposure data

Station: Prilyki  
Image: Pri\_res  
Meteor no:

Date / time

year	month	day	hour	minute	second
2014	02	18	20	45	45

Reference time:

Objective:  Shutter: 0.0

Astrometry

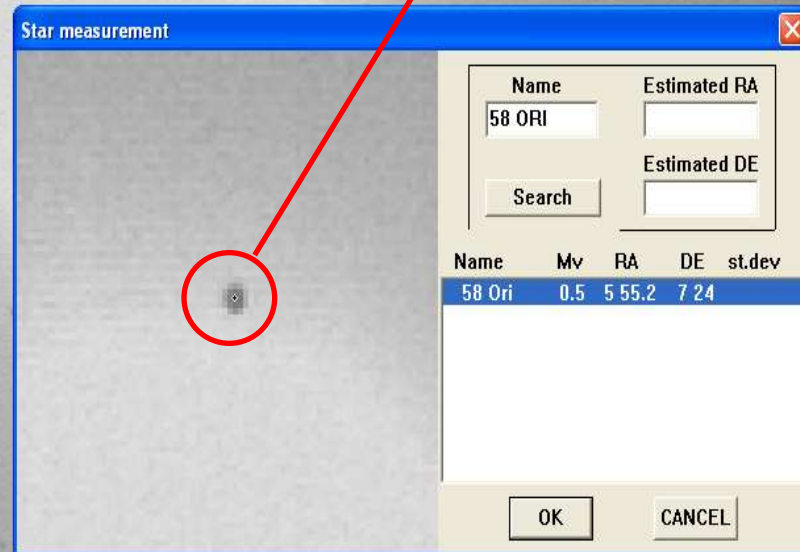
Turner  
 Redsky

OK CANCEL

Reference stars can be used from another image in another time

# ASTRORECORD

Measurement and identification of reference star



The image shows a software window titled "Star measurement" overlaid on a grayscale astronomical image. A red circle highlights a specific star in the image, with a red arrow pointing from a text box to it. The software window contains a search interface with fields for "Name" (containing "58 ORI"), "Estimated RA", and "Estimated DE", along with a "Search" button. Below this is a table with the following data:

Name	Mv	RA	DE	st.dev
58 Ori	0.5	5 55.2	7 24	

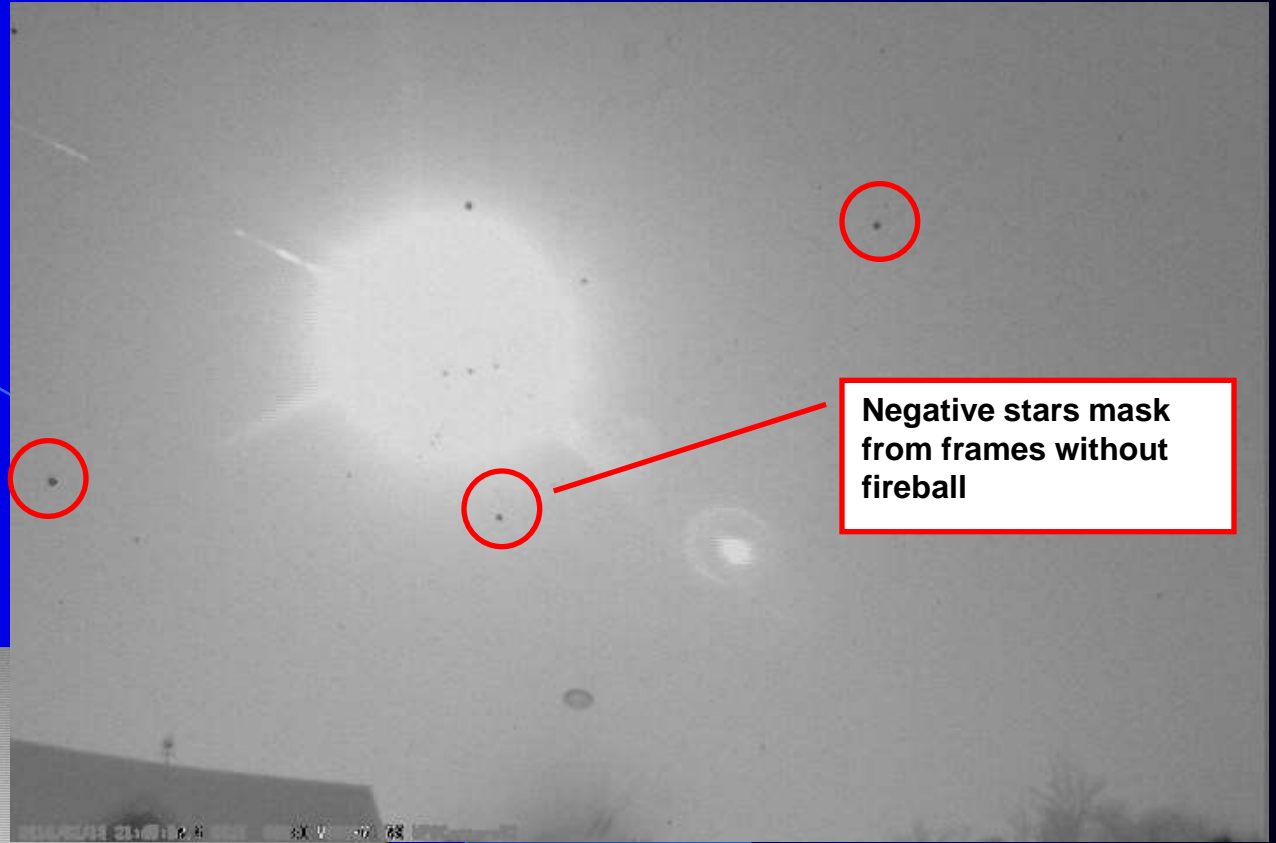
At the bottom of the window are "OK" and "CANCEL" buttons.



# EXAMPLE 1

20140218\_204556

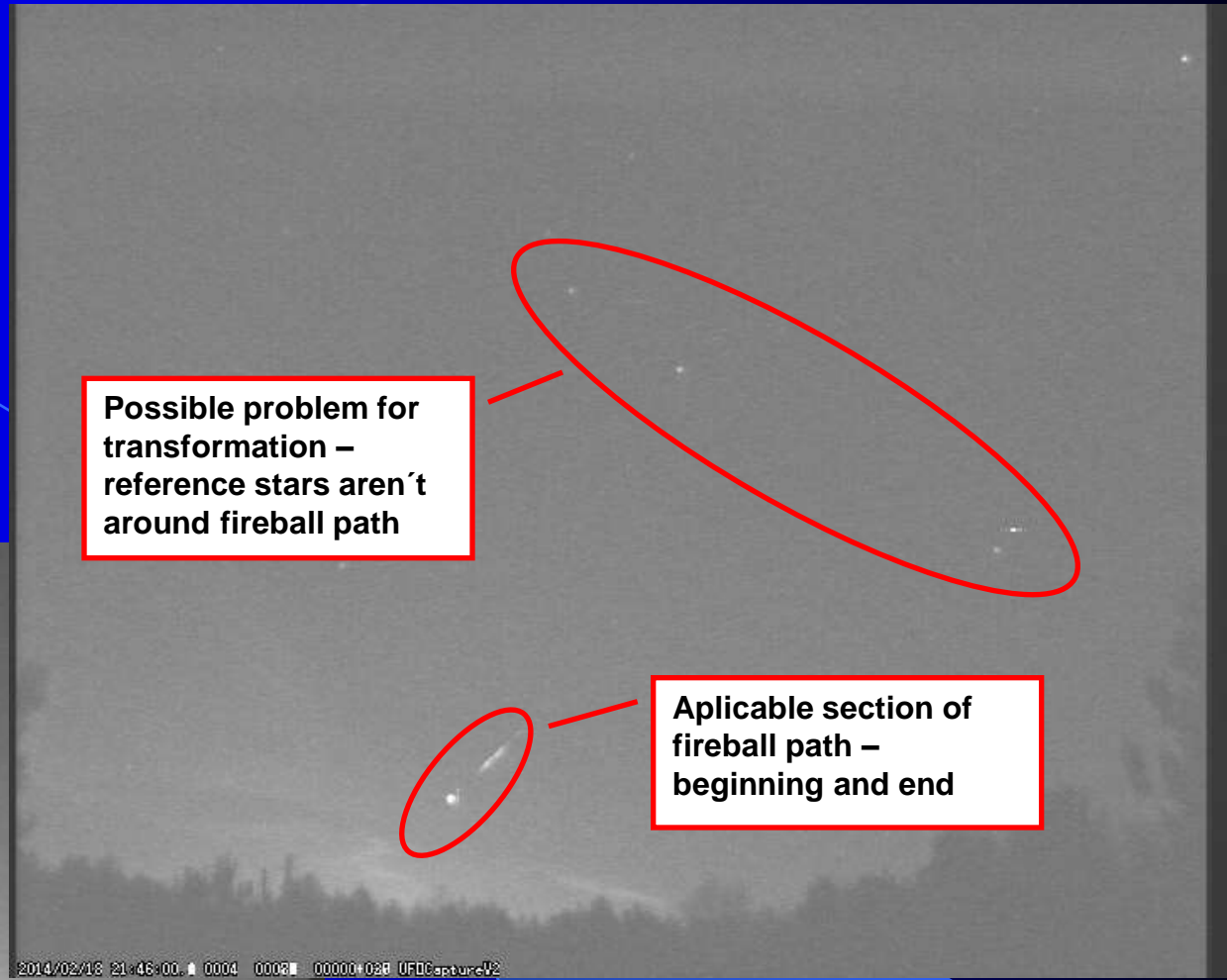
Prilyki (UA)



# EXAMPLE 1

20140218\_204556

Pilipovich (UA)



Possible problem for transformation – reference stars aren't around fireball path

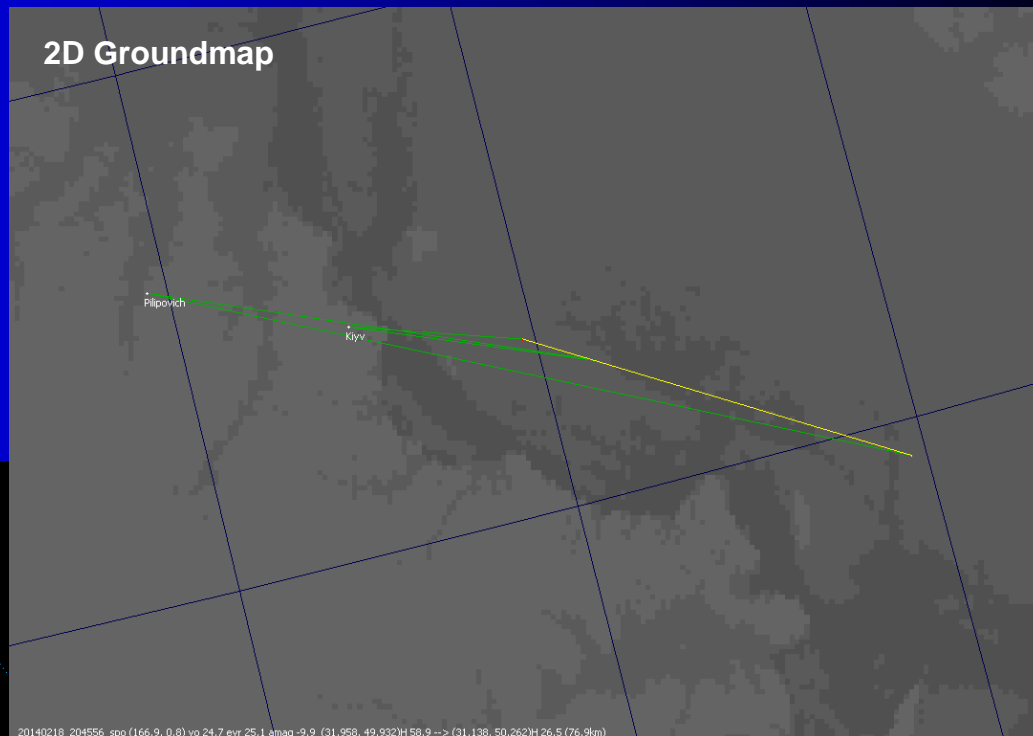
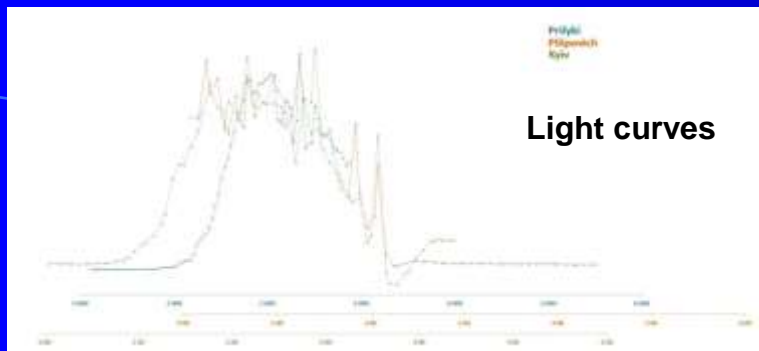
Applicable section of fireball path – beginning and end

2014/02/18 21:46:00.0004 0008 00000+028 UFOCaptureV2

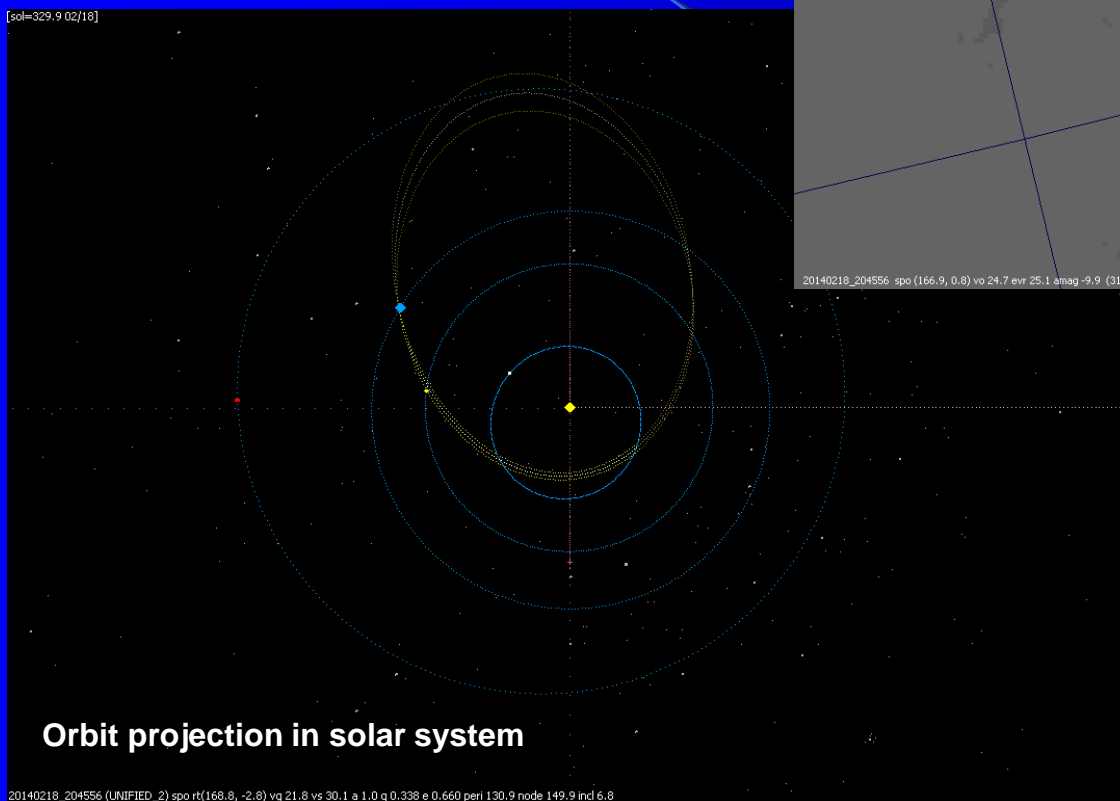
2014/02/18 21:45:59.4004 05839 UFOCaptureV2

# EXAMPLE 1 - RESULTS

20140218\_204556



[sol=329.9 02/18]

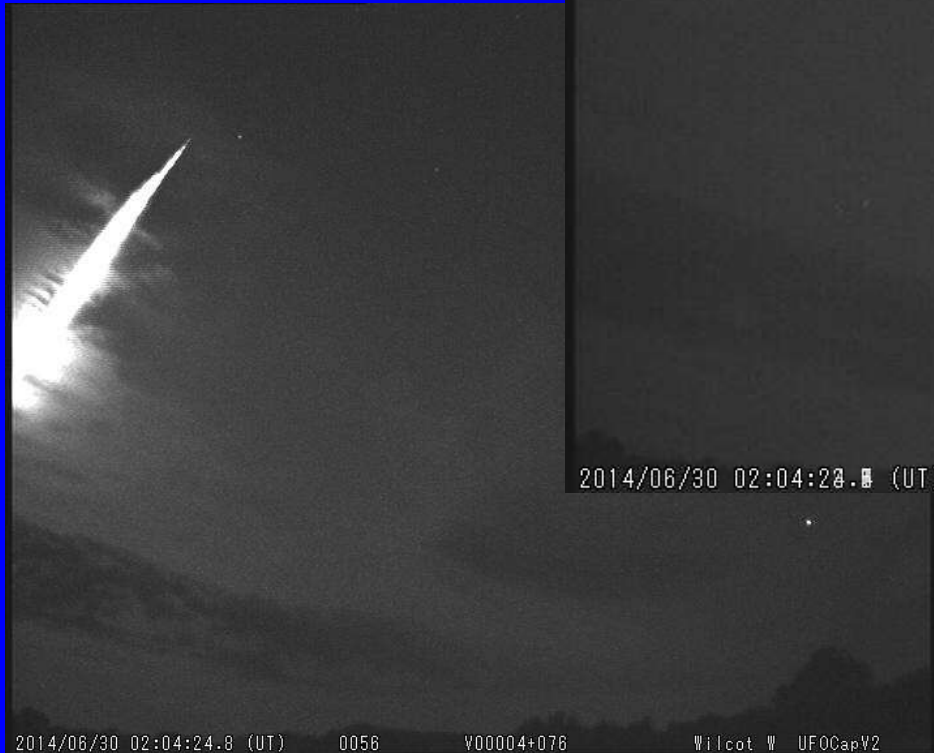




# EXAMPLE 2

20140630\_020424

Wilcot (UK)



# EXAMPLE 2

20140630\_020424

Wilcot (UK)

Applicable section of  
fireball path –  
beginning and end



2014/06/30 02:04:24.0 (UTC)

0039 000000 V000000+0000

Wilcot SW

UFOCapV2

2014/06/30 02:04:26.2 (UTC)

0039

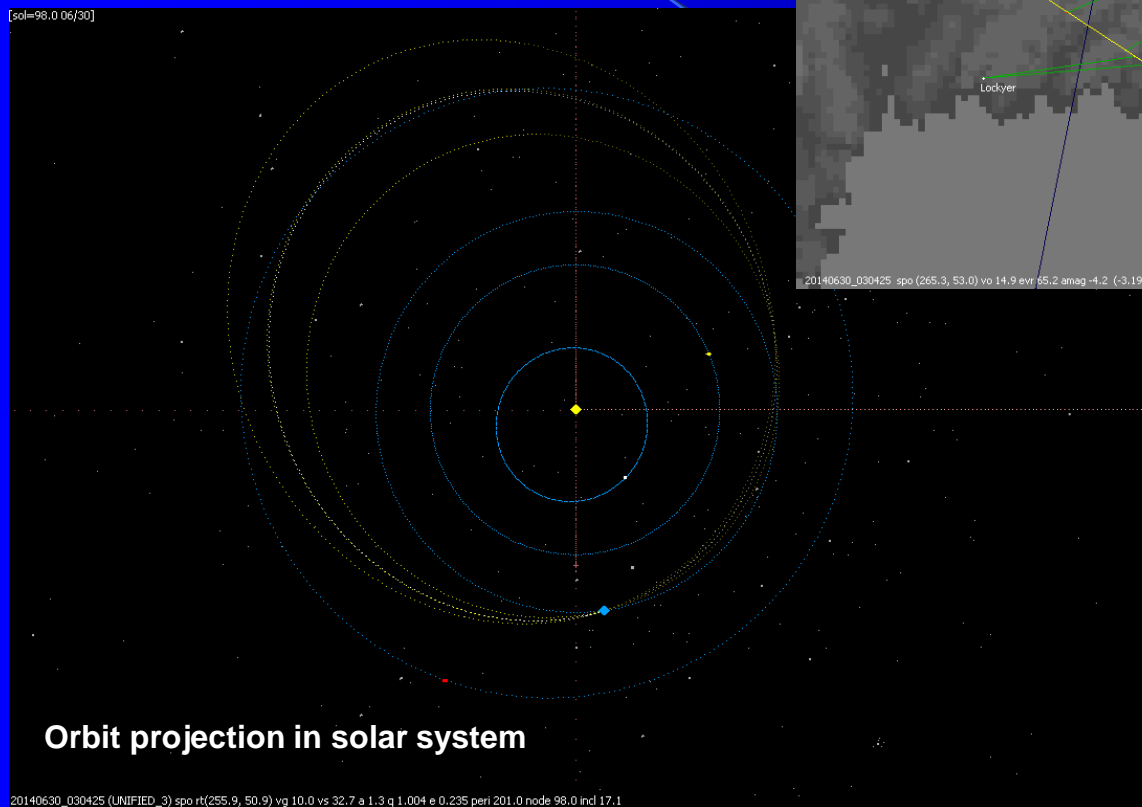
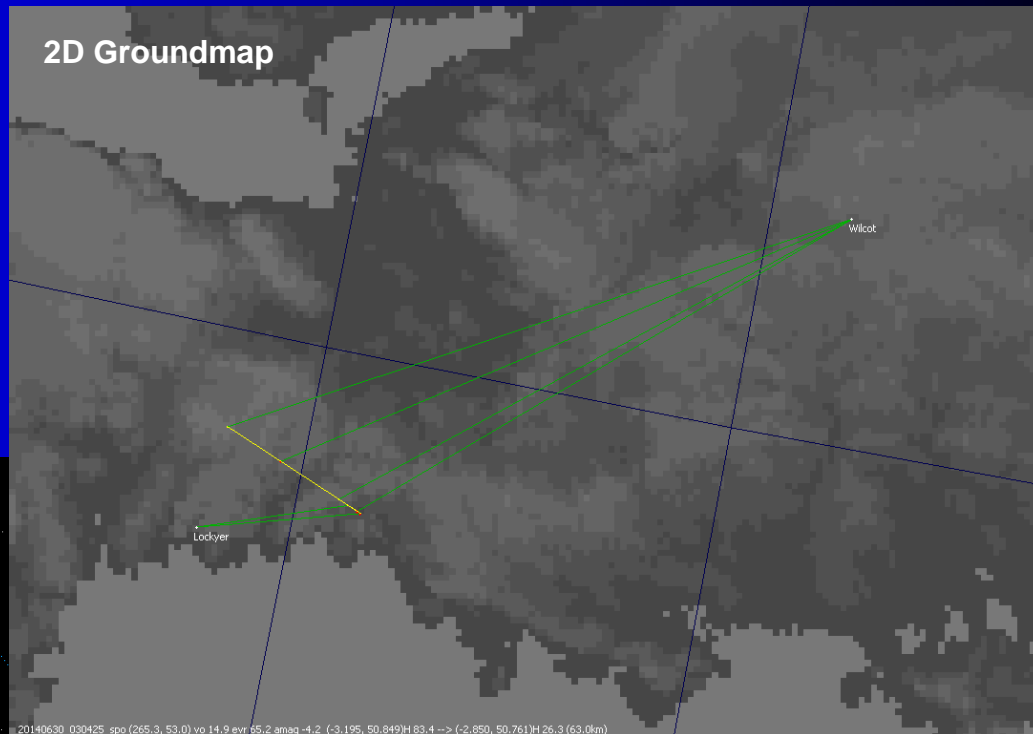
V00131+033

Wilcot SW

UFOCapV2

# EXAMPLE 2 - RESULTS

20140630\_020424



# CONCLUSIONS

**Processing procedure uses commercially available software**

**It can be used for „broken“ videos of interesting meteors or fireballs**

**This method has limitations – number of reference stars, reference stars location to fireball path, etc.**

**Use for all sky cameras is very doubtful !**