# Recent Studies and Available Facilities of the Akdeniz University Space Sciences Group

Volkan BAKIŞ



## A Quick Look at the Department

- Space Sciences and Technologies Department consists of 3 sub-divisions;
  - Space Physics
  - Space Technologies
  - Remote Sensing
- Located in the Akdeniz Univ. main campus in Antalya city.
- Average 35 undergraduate students/year.







# Astronomical site selection for Turkey using GIS techniques

Authors

**Experimental Astronomy** 

October 2015, Volume 39, <u>Issue 3</u>, pp 547–566

Authors and affiliations

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eria Decision Analysis integrated with GIS and or astronomical observatory site selection in Antalya province, Turkey

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1 11 January 2013; received in revised form 28 February 2013; accepted 2 March 2013 Available online 14 March 2013



## Space Sciences Group

Volkan BAKIŞ (Head of the division) Timur ŞAHİN Hicran BAKIŞ Ali KILÇIK Murat KAPLAN Anatoly IVANTSOV

- Topics:
  - Close Binary and Multiple Systems, Stellar Clusters and Formation Regions
  - Active Binaries
  - AGB stars
  - Astrometry of NEOs and asteroids
- 8 MSc students, 8 PhD students





## Facilities

#### • UBT60

- Located at TUBITAK National Observatory, Altitude=2500m, >250 observing nights
- Alta U<sub>47</sub> camera with UBVRI and u'g'r'i'z' filters.
- FOV= 11'x11', Pixel scale=0.69 as/px























#### R=12000 Echelle









## **Facilities**

#### • AUT25 Telescope

- Located on the roof of the department, AU main campus, Altitude=6om
- QSI532wgs camera with UBVRI filters
- Affected by city lights, used mainly for educational purposes



















## **Recent Studies**

#### • UBT60

- EVRENA Project
- ASAS Census of Twins
- GAIA photometric followup
  - Gaia16aye Binary microlensing
  - Gaia16bnz An interesting photometric variability of a blue source





## **Project** Overview

- **People:** V.BAKIŞ (PI), H.HENSBERGE, M.ZEJDA, S.BİLİR, H.BAKIŞ, C.NITSCHELM, İ.BULUT, O.DEMİRCAN, E.YAZ
- Official Duration: 3 years (2010-2013)
- Funded by The Scientific and Technological Research Council of Turkey
- Observatories: TÜBİTAK National Observatory, ÇOMÜ Observatory, European Southern Observatory, Roque de los Muchachos Observatory, South Africa Astrophysical Observatory







#### **Observations and Data Analysis** Methodology

#### Preparation

(Melnik & Efremov, 1995)

Determining candidates

(de Zeeuw et al., 1999)

#### **Observations**

Photometric and spectroscopic observations

#### **Data reduction**

IRAF for spectroscopy, Muniwin for aperture photometry

#### Analysis

WD for LC analysis, Spectral disentangling for sp. orbit (Vrancken et al. 1997)

(Hadrava, 1994)

- Non-LTE modeling of stellar spectra (Bertelli et al. 2009)
- **Evolution modeling**
- Membership test with kinematic parameters

(Tetzlaff et al. 2010)





#### Ser OB1 region QR Ser

Image: qrsertotalit

(none given)

value

Pixel

0.98

0.96

4260













#### Projection of SFRs onto the Galactic Plane observed so far & to be observed in the future





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Publications of the Astronomical Society of Australia (PASA), Vol. 33, e046, 9 pages (2016). © Astronomical Society of Australia 2016; published by Cambridge University Press. doi:10.1017/pasa.2016.36

#### Study of Eclipsing Binary and Multiple Systems in OB Associations IV: Cas OB6 Member DN Cas

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## Some Remarks

• Most of the EB systems SFRs are multiples, modern analysis techniques such as spectral disentangling are a must,

• A full list of secure member EBs in SFRs is still a need, continue observations!

• PMS binaries can complete the defficient part (lower end) of the isochrones for a more reliable/ precise age determinations,





## **Recent Studies**

#### AUT25

- DN Cas in Cas OB6 stellar formation region
- Gaia16aye & Gaia16bnz























### Thanks for your attention...

