Dark Energy Survey
(DES)

Steven Clayton

TRAC Presentation

August 6, 2015

THE DARK ENERGY SURVEY

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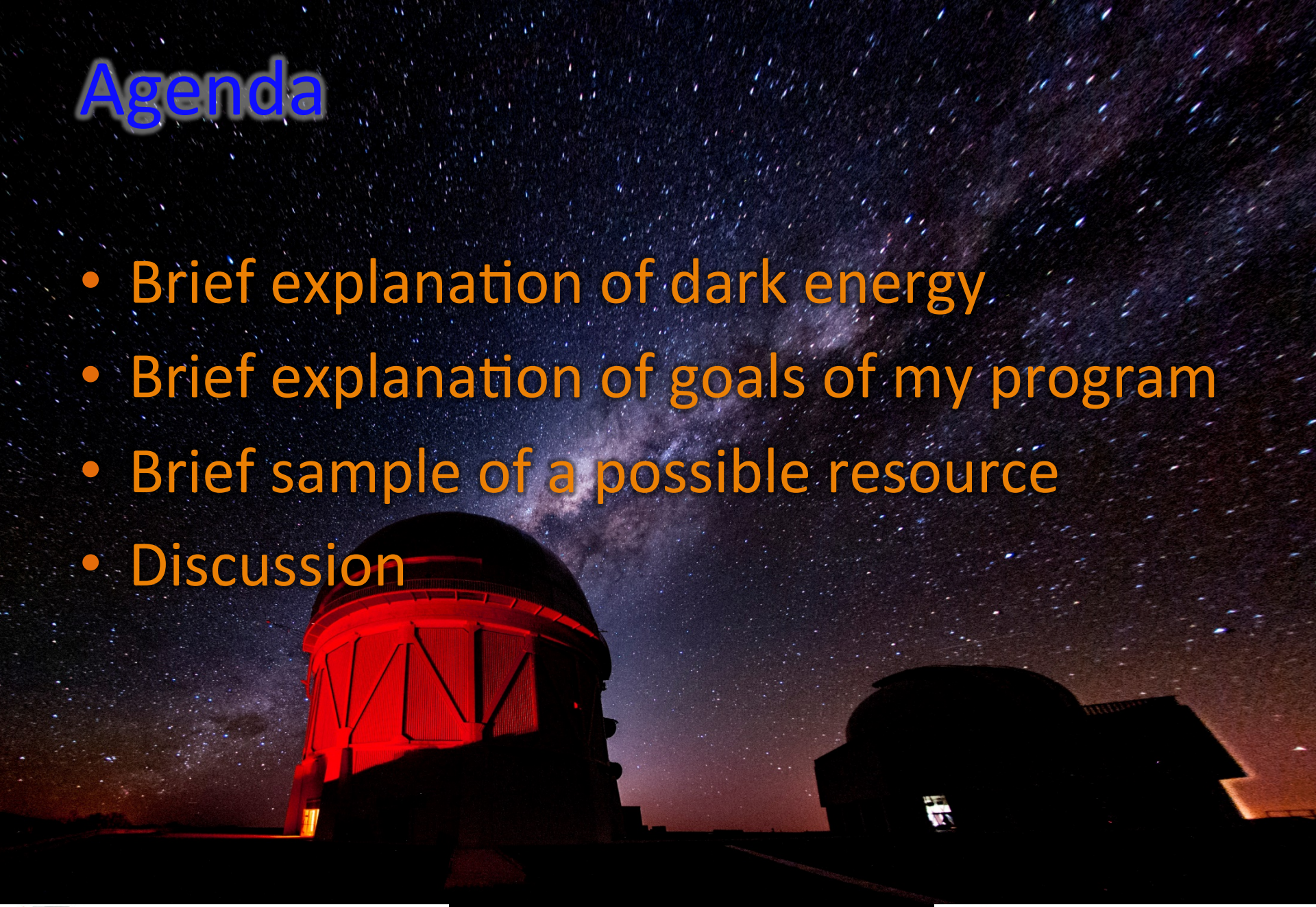
Agenda

- Brief explanation of dark energy
- Brief explanation of goals of my program
- Brief sample of a possible resource
- Discussion



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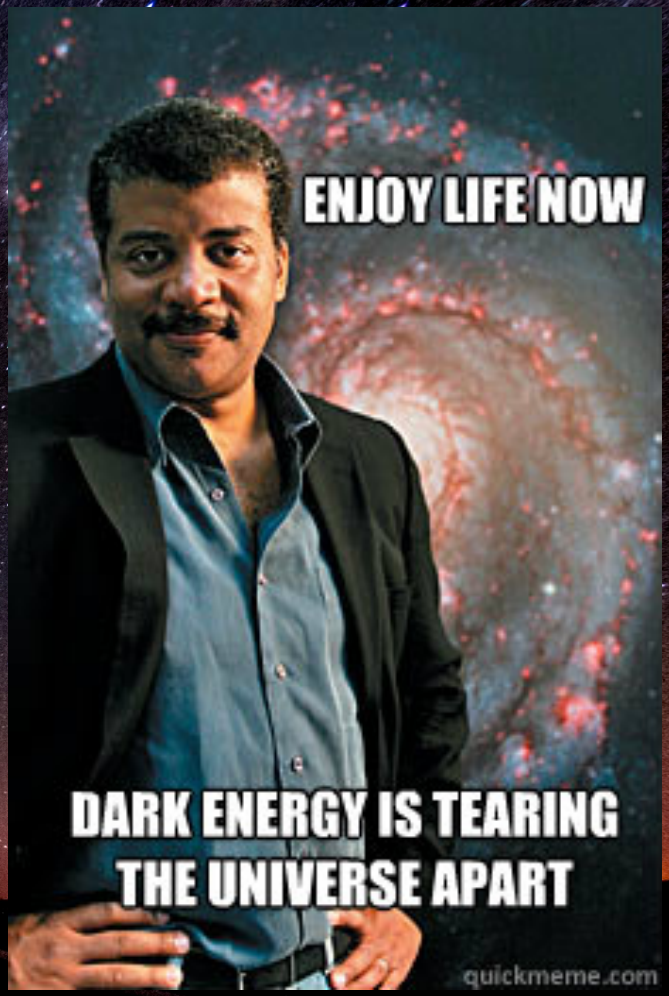
What is Dark Energy?

The universe is expanding

This expansion is speeding up



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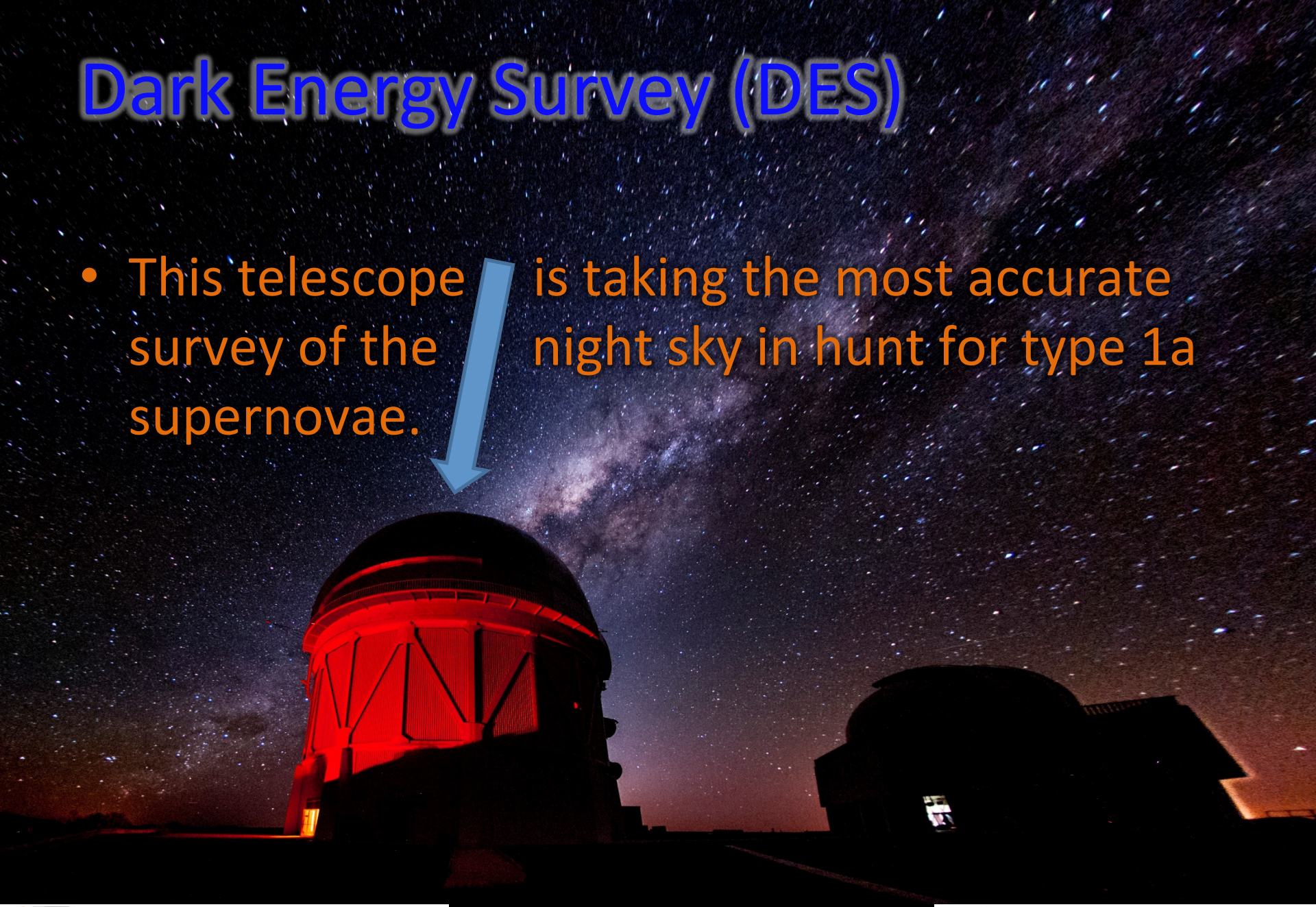
Dark Energy Survey (DES)

- This telescope is taking the most accurate survey of the night sky in hunt for type 1a supernovae.



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Type 1a supernovae

- Pretty close to a standard candle – same absolute brightness
- Comparting absolute brightness and apparent brightness gives us a **distance** to that supernova or galexy

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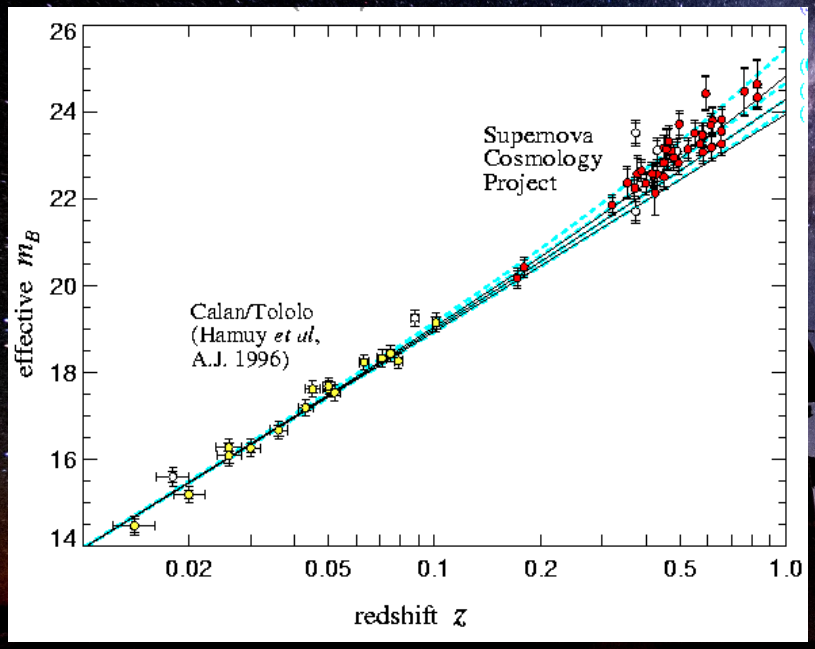
Red Shift

- Comparing the spectra of the supernova or cluster tells us the redshift of the object
- This redshift tells us how fast it is moving away
- Redshift for galaxies is caused mostly by expansion, not Doppler effect

Data

- Comparing the redshift and the distance shows that the farther objects are moving faster



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Goals of my program

- Collaborating with amazing cosmologists, Dr. Brian Nord, Dr. Jim Annis, & Dr. Richard Kron
- Make a resource that is public facing
- Help educate people about Dark Energy
- Provide a resource that uses DES data

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