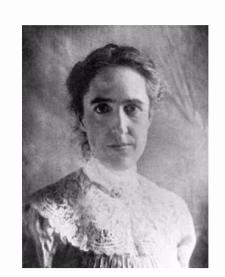
## Distances to Galaxies

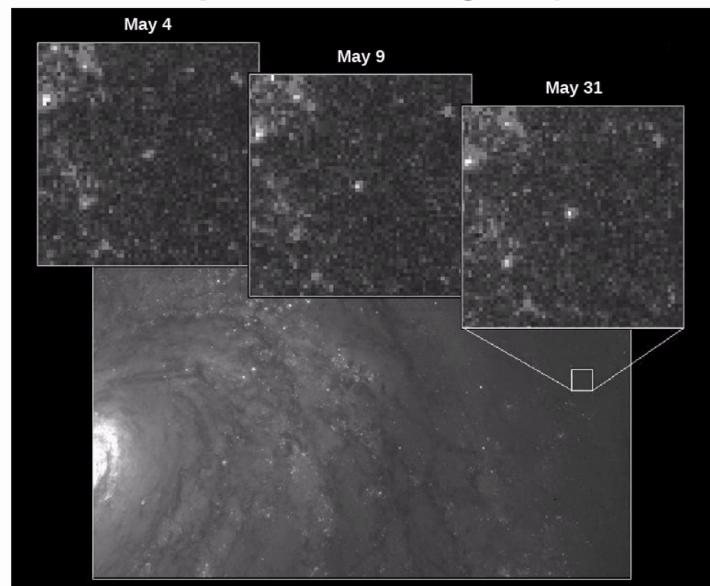
Henrietta Swan Leavitt:
measure the period of
Cepheid variables to find
their intrinsic luminosity



Edwin Hubble: use Cepheids as standard bulb



Cepheid in M100 galaxy



To go to much greater distances, use Type Ia supernovae (exploding white dwarfs)



Supernova in M101 Galaxy (Pinwheel)

Can also use TullyFisher relation:
intrinsic luminosity of
spiral galaxy scales
with its rotation rate

