The Great Red Spot (GRS) on Jupiter is Shrinking.

The images (except figure 4) were taken from the NACAA (National Convention of Australian Amateur Astronomers) presentation by Barry Adcock and Stewart Beveridge's entitled:- "Fifty years of Observations of Jupiter's Great Red Spot".

The first ever recorded image of Jupiter was taken by Andy Common around 1860. The Great Red Spot (GRS) is at the top of the image below in figure 1. The image is quite grainy; however, the width of the GRS can be calculated quite accurately. It is just over 45000 km wide. (See figure 2 data point)

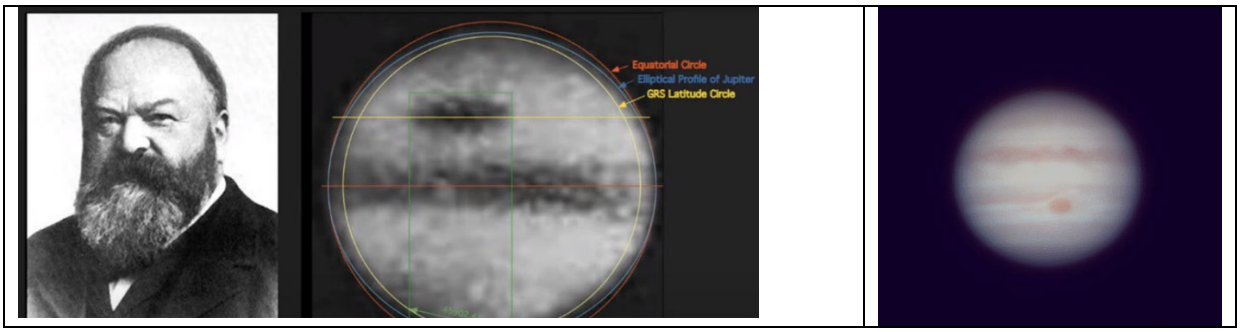


Figure 1: Andy Common's image of Jupiter's GRS (on the left) taken with his telescope and primitive film camera. My image of the GRS taken on 16 May 2018 with a CCD camera attached to a telescope.

The data points below include Andy Common's image plus the Voyager 1 and 2 images as well as Hubble images and Cassini probe images and the author's images. The plotted data looks quite linear and the GRS is clearly decreasing in size.

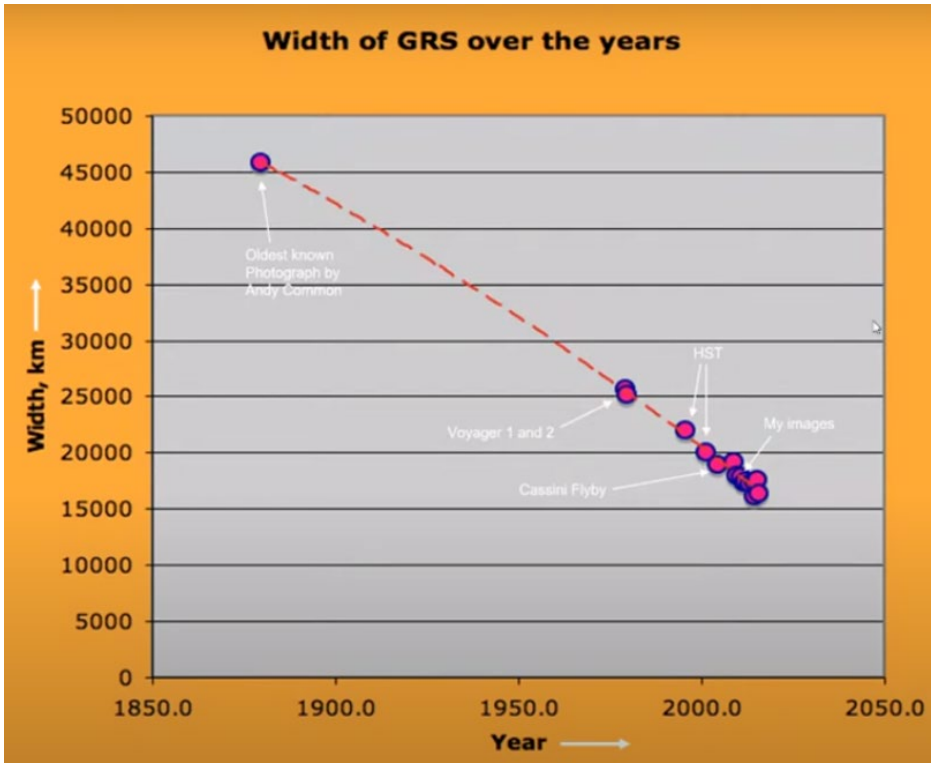


Figure 2: Combined data from Andy Common, Voyager, Hubble, Cassini and Stewart Beveridge's images.

Stewart Beveridge's friend used a quadratic model to predict when the GRS would disappear. Below is this model. (Originally, I wasn't sure why a quadratic model* was used, maybe the R^2 was the best out of all available models)

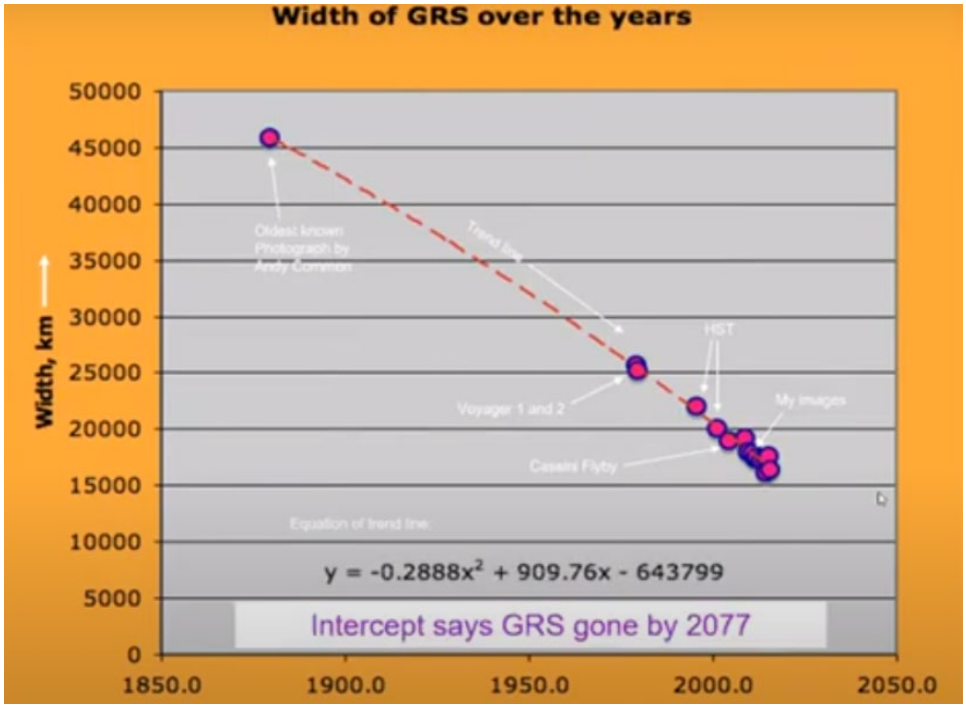


Figure 3: The quadratic model was used to make a prediction that the GRS will disappear in 2077.

On further reflection*, a quadratic model could be used to model the GRS. The GRS would have initially started small, grew to a maximum and now it is decreasing in size. (See figure 4) The model has the origin of the GRS around 1100 and the demise around 2077. Overall, it predicts that the GRS will last for approximately 1000 years.

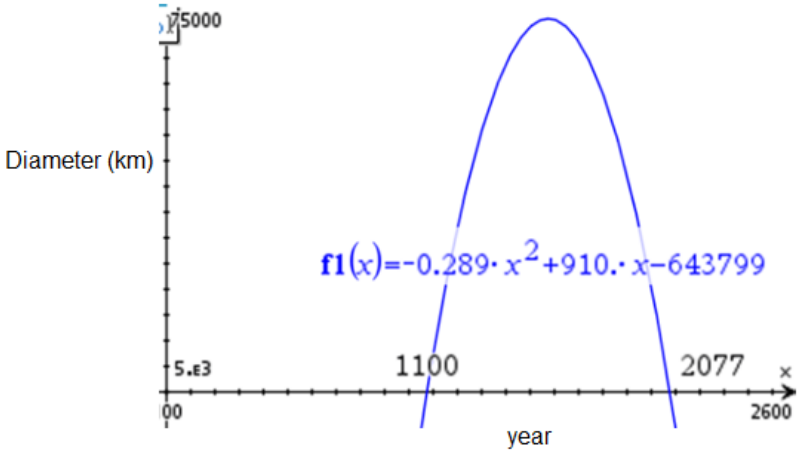
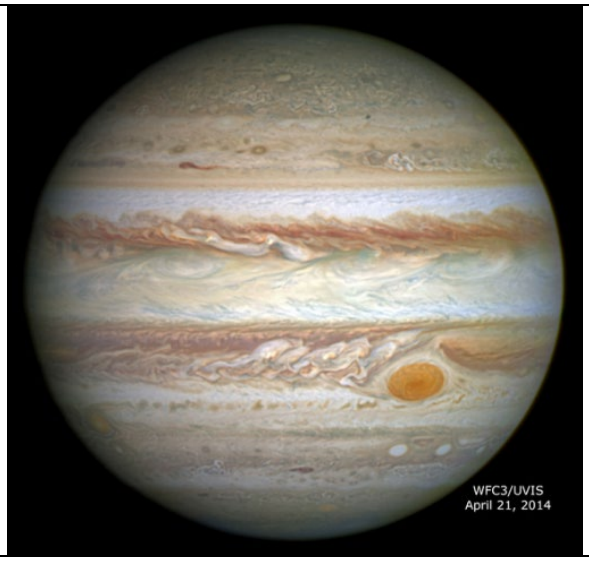


Figure 4: The quadratic model indicates that the GRS started around 1100 and will disappear around 2077.

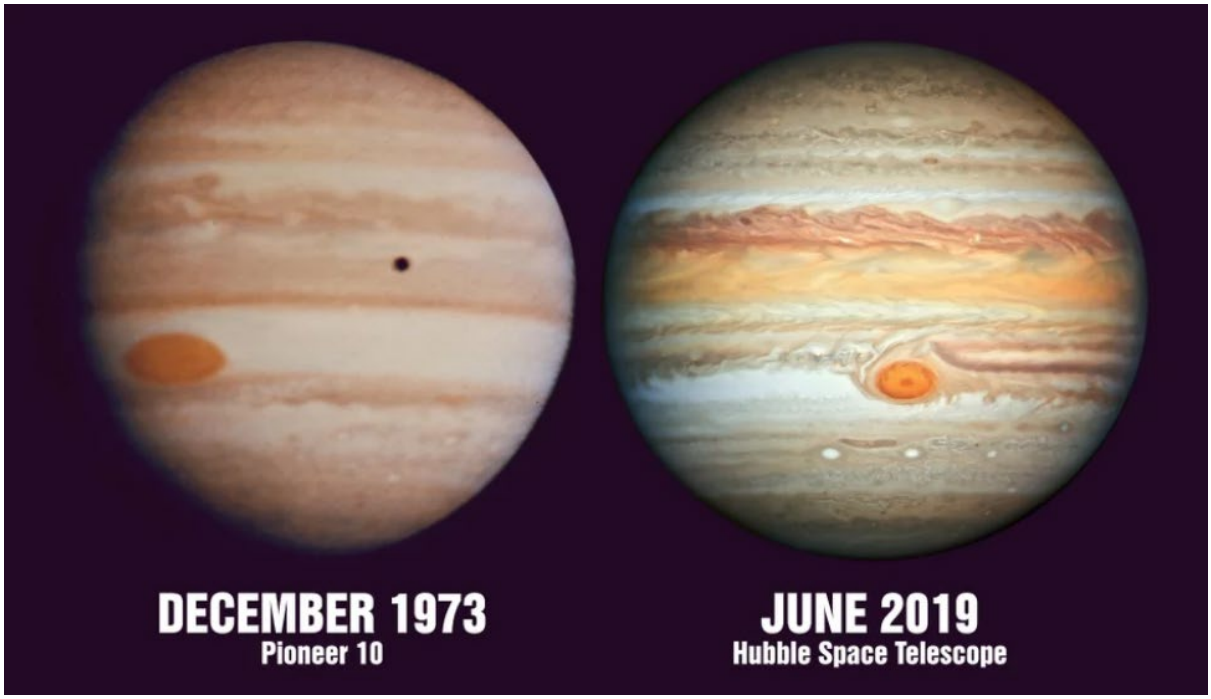
Voyager 1 1973

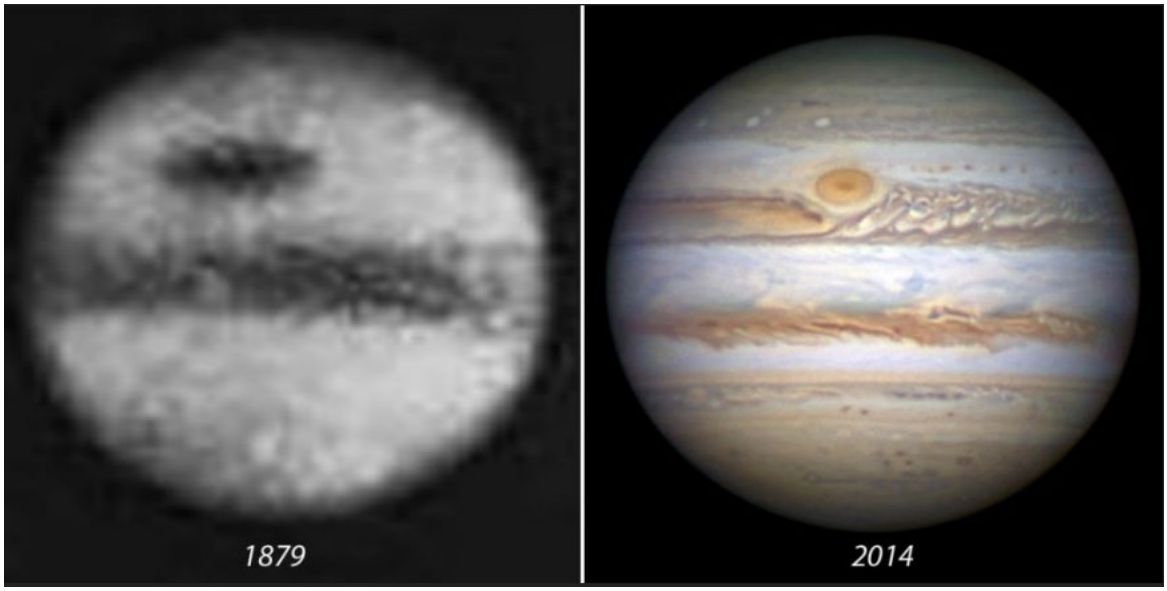
Jupiter from London, Nov 18 2012 by Jim Thurston, London, UK.
Equipment: Celestron 9.25" SCT, DMK21, Astronomik RGB filters.

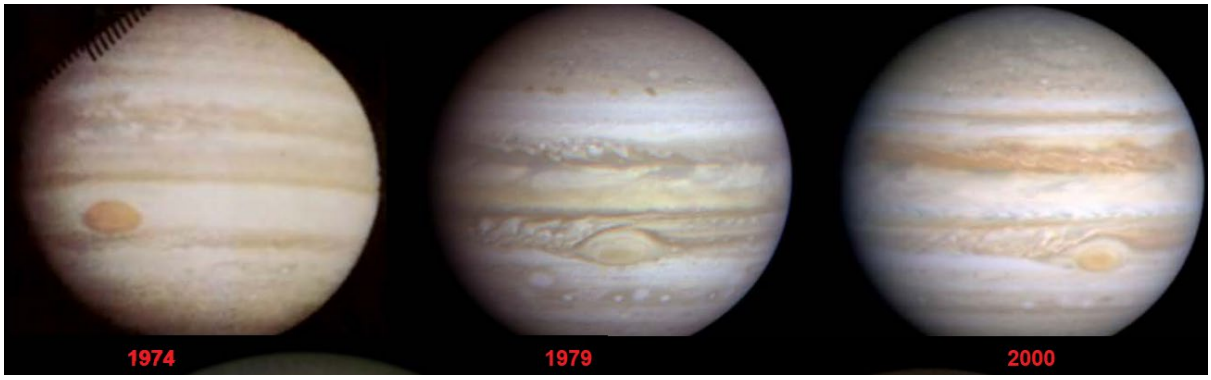


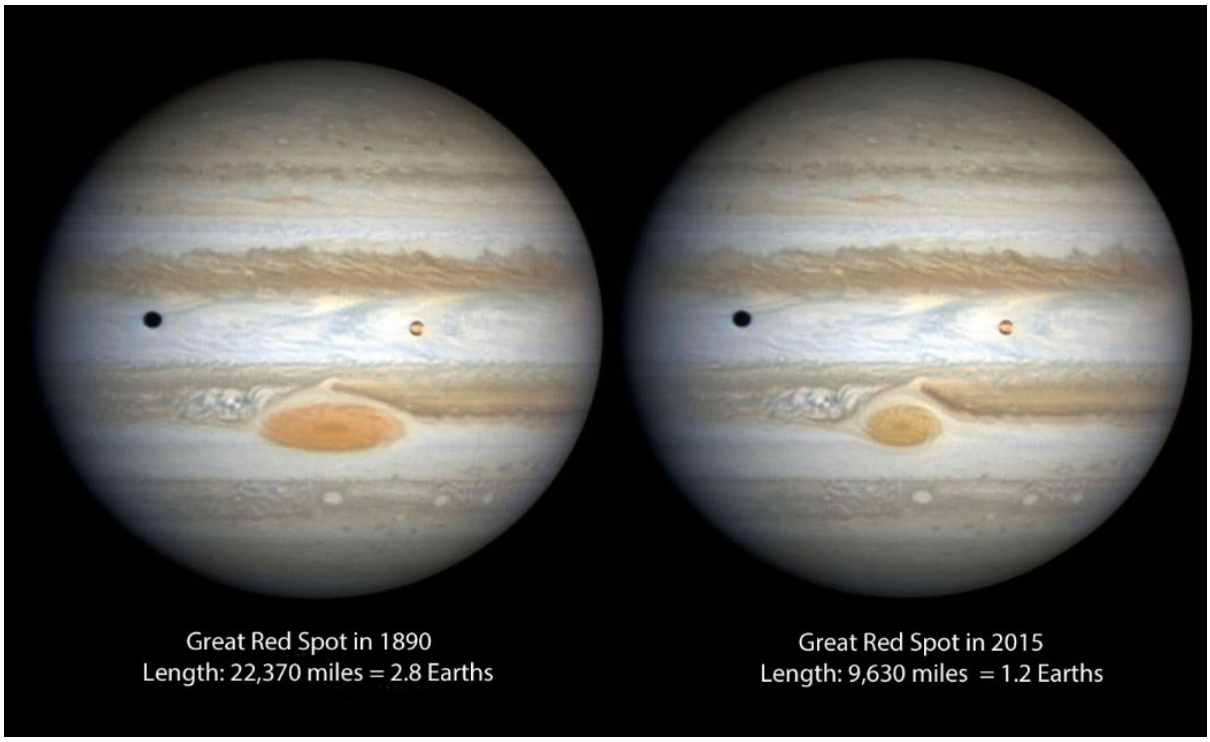
Jupiter, 2016 March 4th by David Attie, Abu Dhabi, UAE. Equipment: C11, Barlow APN 2,7x,

 February, 15-2018; 08:46 TU CM I: 87.6 CM III: 157.0 C14 Edge + ASI 290 + PM 2X	 JUNE 2019 Hubble Space Telescope

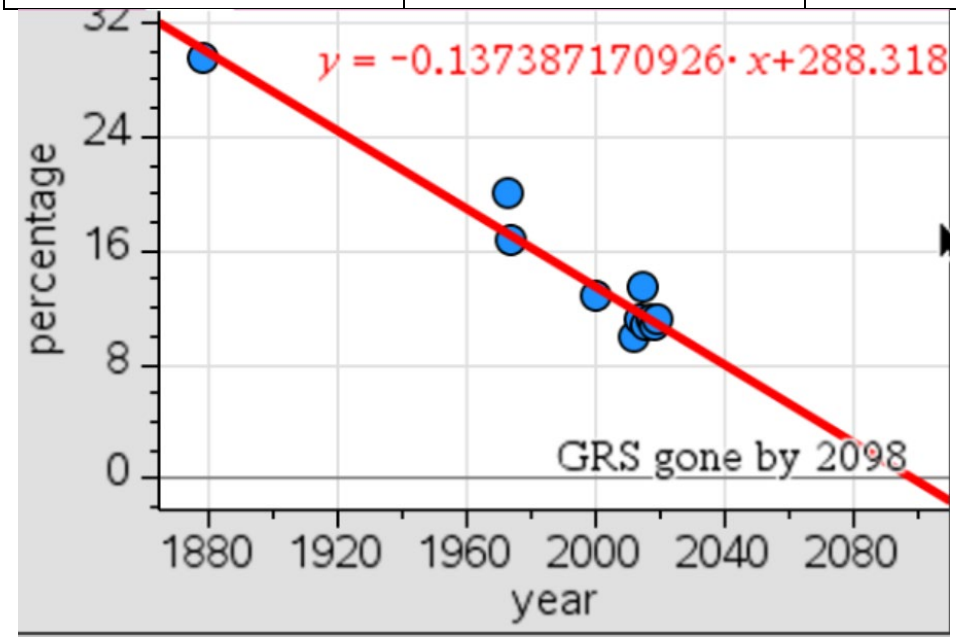

DECEMBER 1973
Pioneer 10
JUNE 2019
Hubble Space Telescope


1879
2014


1974
1979
2000


Great Red Spot in 1890
Length: 22,370 miles = 2.8 Earths
Great Red Spot in 2015
Length: 9,630 miles = 1.2 Earths

Year	Fraction (width of spot over diameter)	Percentage of diameter
1879	21/71	29.58
1973	13/65	20
1974	8/48	16.67
2000	6/47	12.77
2012	6/50	12
2014	8/71	11.26
2015	10/74	13.51
2016	7/65	10.77
2017	6/54	11.11
2018	6/56	10.71
2019	8/71	11.26



Solving the equation y =-0.1373x + 288.318 for when y = 0 (GRS gone) gives the year, 2098.