AuthorTopic: Blair Cuspids (Read 4568 times)

JFincannon
IOTW posters
Sr. Member
Posts: 455

Blair Cuspids

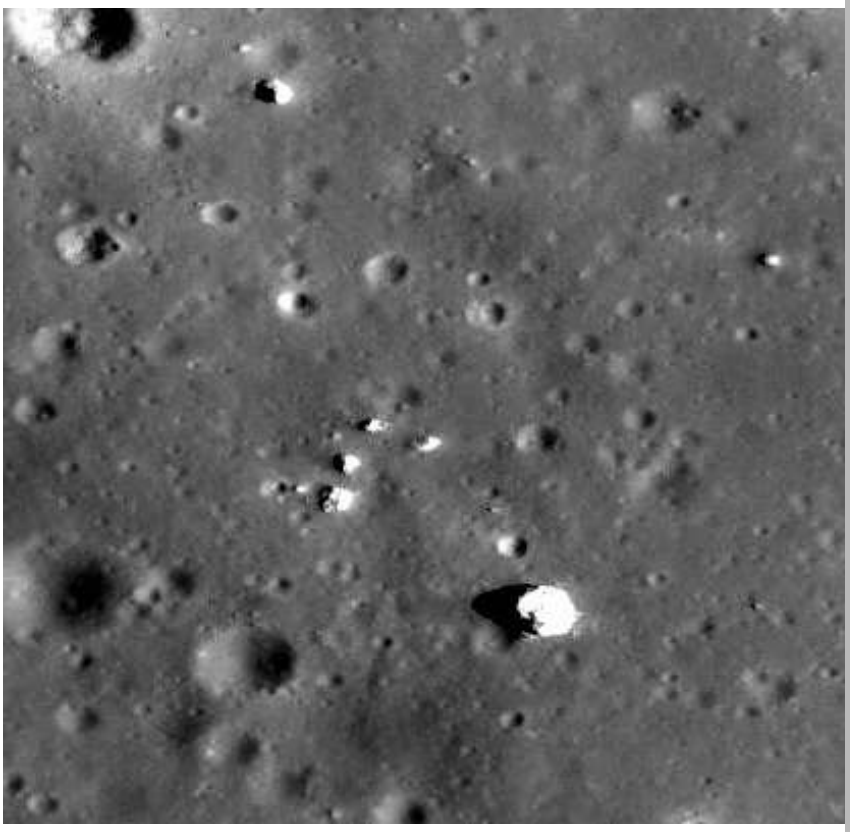
« **on:** September 26, 2012, 05:33:39 pm »

Of historical interest to some, and imaged three times by LRO perhaps because of this interest, here are the so-called Blair Cuspids which gained some notoriety in the late 60's.

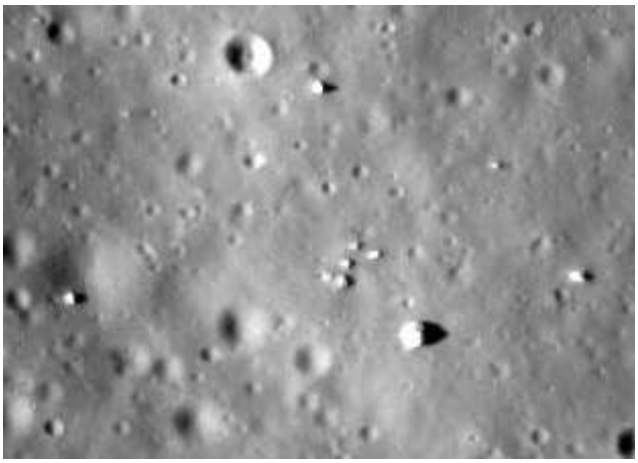
Attached is a cropped version of the original Lunar Orbiter II image (61H3). The Sun elevation is 11 degrees. The shadow length (using LRO data to measure the distance between the surface features) of the widest object is about 113 meters.

The location based on LRO coordinates seems to be 5.024 degrees N latitude and 15.58 degrees E longitude.

The LRO image (http://wms.lroc.asu.edu/lroc/view_lroc/LRO-L-LROC-3-CDR-V1.0/M159847595RC) shows the site at 1755 pixels from the left and 23760 pixels from the top (perform a 180 degree rotation to get the site oriented correctly). The Sun elevation is 42 degrees and the slew angle near zero with a pixel resolution widthwise of 0.4 m/pixel. A cropped/rotated version is attached.

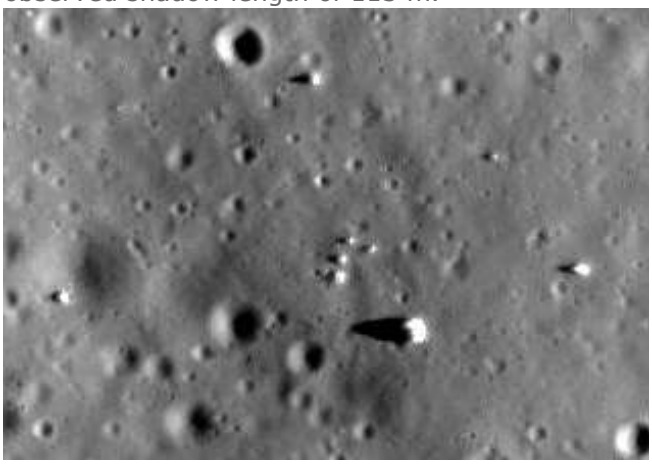


The LRO image (http://wms.lroc.asu.edu/lroc/view_lroc/LRO-L-LROC-3-CDR-V1.0/M181066153RC) shows the site at 3120 pixels from the left and 741 pixels from the top (perform a flip about the horizontal axis.. up/down are flipped to get the site oriented correctly). The Sun elevation is 23 degrees and the slew angle near zero with a pixel resolution widthwise of 1.14 m/pixel. A cropped/flipped version is attached.



The LRO image (http://wms.lroc.asu.edu/lroc/view_lroc/LRO-L-LROC-3-CDR-V1.0/M192853500LC) shows the site at 3402 pixels from the left and 16903 pixels from the top (perform a 180 degree rotation to get the site oriented correctly). The Sun elevation is 20 degrees and the slew angle near zero with a pixel resolution widthwise of 1.12 m/pixel. A cropped/rotated version is attached.

Because we have images at different Sun angles, it is possible to determine the surface slope near the objects. The two most recent LRO images have Sun coming from opposite directions and at similar elevation but clearly the shadow lengths are different. Using trig, it turns out that -3.85 degrees in the Westward direction explains the different shadow lengths. This implies the height of widest one to be 10.3 m (since the widthwise 0.4m/pixel by heightwise 0.55m/pixel M159* image shows it to be about 11 m on the other two sides, this makes sense). However, using this height provides only a shadow of 83 m long for it. Examining M192* shows that perhaps the slope falls away even more beyond the nearby proximity of the widest object. Only 1.9 extra degrees is required to get the observed shadow length of 113 m.



« Last Edit: September 27, 2012, 03:30:26 pm by JFincannon » Logged

jules

Global Moderator
Hero Member

Posts: 3478

Re: Blair Cuspids
« **Reply #1 on:** September 26, 2012, 07:35:26 pm »

There's a lot of weird stuff out there about the Blair Cuspids. Here's a sensible summary - with some interesting links to more.

This would make a great Image of the Week JF! All we need is an extra couple of sentences explaining their "discovery."

Logged

Geoff

Global Moderator
Hero Member

Posts: 2143

The history of astronomy is a history of receding horizons. - Hubble.

Re: Blair Cuspids
« **Reply #2 on:** September 27, 2012, 06:21:40 am »

None of the attachments work for me - get a '404 attachment not found' error.

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kodemunkey

IOTW posters
Hero Member

Posts: 1650

Re: Blair Cuspids
« **Reply #3 on:** September 27, 2012, 08:29:14 am »

That's interesting, i've never heard of these before.

This crater has an interesting melt pattern, part of which extends up the "lower" (in frame reference) wall. There's also a lighter albedo material around the lower middle of the crater and a large number of boulders protruding through the melt in the top of the crater floor.
http://wms.lroc.asu.edu/lroc/view_lroc/LRO-L-LROC-2-EDR-V1.0/M190623264LE

« Last Edit: September 27, 2012, 08:39:44 am by kodemunkey » Logged

Geoff

Global Moderator
Hero Member

Re: Blair Cuspids
« **Reply #4 on:** September 27, 2012, 01:41:01 pm »

Quote from: jules on September 26, 2012, 07:35:26 pm

> There's a lot of weird stuff out there about the Blair Cuspids. Here's a sensible summary - with some interesting links to more.

Posts: 2143

The history of astronomy is a history of receding horizons. - Hubble.

> This would make a great Image of the Week JF! All we need is an extra couple of sentences explaining their "discovery."

Did you read some of the stuff about Moon Zoo in the comments?

Logged

jules

Global Moderator
Hero Member

Posts: 3478

Re: Blair Cuspids
« **Reply #5 on:** September 27, 2012, 02:54:27 pm »

Yes - pity he didn't post his image on the forum! Sounds like he found a well defined boulder track.

Logged

Geoff

Global Moderator
Hero Member

Posts: 2143

The history of astronomy is a history of receding horizons. - Hubble.

Re: Blair Cuspids
« **Reply #6 on:** September 27, 2012, 03:27:23 pm »

> **Quote from: jules on September 27, 2012, 02:54:27 pm**
>
> Yes - pity he didn't post his image on the forum! Sounds like he found a well defined boulder track.

Or an alien on a pogo-stick

Logged

JFincannon

IOTW posters
Sr. Member

Posts: 455

Re: Blair Cuspids
« **Reply #7 on:** September 27, 2012, 03:40:28 pm »

For some reason I could not post anything in the attachments directory, so I redid the original posting pointing to the images that I uploaded elsewhere.

Also, I don't know if I want to post the history of this feature since I do not have original documents, technical papers or anything other than hearsay and possibly inaccurate newspaper and magazine articles (again I do not have the originals.. if that matters).

Logged

Geoff

Global Moderator

Re: Blair Cuspids
« **Reply #8 on:** September 27, 2012, 04:15:23 pm »

Hero Member

Posts: 2143

The history of astronomy is a history of receding horizons.
- Hubble.

This is quite an interesting article on the Blair Cuspids:
http://www.vgl.org/webfiles/lan/cuspids/cuspids.htm

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JFincannon

IOTW posters
Sr. Member

Posts: 455

Re: Blair Cuspids
« **Reply #9 on:** September 27, 2012, 05:24:11 pm »

I am somewhat skeptical of "William Blair" since I cannot see any papers published by him in any field (anthropology, archeology), but the other guy, Richard W. Shorthill of the Boeing Scientific Research Laboratories , quoting a more reasonable position, has >100 papers in the Harvard ADS database. So I cannot comment on whether Blair ever existed or what exactly he said at this late of a date, all I can show are LRO images of the site.

If anyone wishes to check my work, it would be nice. I assumed the slope was the same on both the sides of the big object. I used: Shadow length= Height of object / tan ((sun elevation angle+surface slope)*pi/180). Gotta get the sign right depending on which direction the Sunlight is coming from.
« Last Edit: September 27, 2012, 07:06:13 pm by JFincannon »

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jules

Global Moderator
Hero Member

Posts: 3478

Re: Blair Cuspids
« **Reply #10 on:** September 27, 2012, 09:11:56 pm »

Quote from: JFincannon on September 27, 2012, 03:40:28 pm

> Also, I don't know if I want to post the history of this feature since I do not have original documents, technical papers or anything other than hearsay and possibly inaccurate newspaper and magazine articles (again I do not have the originals.. if that matters).

By history I meant literally just a couple of sentences stating they were first spotted on a Lunar Orbiter photo in 1966 (I gather that seems to be the case.) And keep it very simple. (It was just an idea as I hadn't heard of the Blair Cuspids before your post and it's always good to feature something unusual.) Back in the 60s I suppose I can see why they might have

aroused some curiosity but these kind of shadows are commonplace in NACs.

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