UFO UpDates Mailing List

Re: Mexico City Footage - Reply From VideoMeister

From: **Bruce Maccabee <brumac@compuserve.com>**
Date: Wed, 9 Sep 1998 00:47:14 -0400
Fwd Date: Wed, 09 Sep 1998 12:16:37 -0400
Subject: Re: Mexico City Footage - Reply From VideoMeister

>Date: Tue, 8 Sep 1998 07:06:23 -0400 (EDT)
>To: UFO UpDates - Toronto <updates@globalserve.net>
>From: Bob Shell <bob@bobshell.com>
>Subject: Re: Mexico City Footage - Reply From VideoMeister

>>Your concern about the relative edge sharpness of the UFO and
>>buildings is a good point. To control for this, I checked
>>against both the nearby building and a far one (with the
>>triangular shape). The UFO edge sharpness is intermediate
>>between the nearby and far buildings. Both buildings showed
>>motion-smearing; the far one showed more, as expected from
>>theory. (The reason is complicated, having to do with stochastic.
>>noise, digitizing, and thresholds.)

>>So I eliminated edge-contrast as a possibility for creating the
>>UFO lack of smearing.

>Errr, ummmm. "stochastic noise"???? Whazzat??? Errol, you
>ever hear of such an animal?

>"digitizing and thresholds"???? Again, huh?? What's dis guy
>talkin' 'bout???

>The far buildings would show more motion blur simply because they
>are farther away, a principal which applies in camera rotation
>regardless of whether it is video, film, or still images..

>Imagine the camera in the center of a circle, with a line running
>from it to the circle. Now imagine a smaller circle inside the
>other one. If you rotate the camera through X degrees, the part of
>the inner circle bisected by the lines at the beginning and end
>of the camera's movement is shorter than the part of the larger.
>circle. The inner circle represents the close buildings, the larger
>circle the more distant buildings. Same movement blurs the distant
>buildings more.

>This involves no complex theory and has nothing to do with any of
>the BS in VideoMeister's post.

Well, yes.... and no. Like any image on the film plane, the
"thickness of an edge" has an extension (length) on the film
plane which correponds to an *angle*. This angle, when projected
out into space beyond the camera lens corresponds to an
extension (length) that is proportional to the distance. Hence a
1 foot sized object at 10 feet makes an angle of 1/10 radian
(about 5.7 degrees), as does a 10 foot object at 100 ft. A 1

foot object at 100 ft makes an angle of 1/100 radian (about 0.57 deg.... approximate angular size of the moon or sun).

Now suppose a camera is twisted slightly during the exposure such at edges of images are smeared.

For simplicity assume that none of the objects in the field of view moves during the exposure.

In this case the edges of _each_ object will be smeared by an amount corresponding to the angular twist of the camera.

If the camera moved a (whopping) 5.7 degrees or 1/10 radian during the exposure, then the edge of an object at 10 ft would have a 1 ft smear and the edge of an object at 100 ft would have a 10 ft smear. But, on the film plane, these two smears would _be_the_same_size_. What size would that be?

Take the angle of rotation and multiply by the focal length.

If the focal length = 50 mm, a 1/10 angle of rotation corresponds to (a whopping) 5 mm of smear, _each_image_ on the focal plane would have the same amount of smear - regardless of how far away the imaged object was.

Hence, it is true that the "amount of smear at the object distance" grows with distance as Bob (and Jeff) have pointed out. However, on the film plane all these smears are the _same_ amount.

Typically the smear is much less that 1/10 radian of course.

In the case of the Mexico Video the smear of the building edge corresponds to building motion of several feet _if_the_camera_ were_motionless_and_the_building_moved_ (as by a highly localized earthquake!).

For the observed amount of smear the further buildings would have moved more than the nearer buildings. Since we don't buy the idea that the buildings moved we assign the smear to rapid rotation of the camera (during 1/30 sec frame time).

The UFO image, however, shows no smear!

If we assume that the buildings didn't move, but the camera rotated, then to avoid smear, the UFO must have moved in the same direction as the camera rotation and it must have moved by an amount equal to the smear angle, as determined by the length of the smear of the edge of the image of the building, projected to the (assumed) distance of the UFO. This corresponds to 3 ft or so.

In other words, to explain the lack of smear of the UFO image while the building image is smeared, one must assume either the UFO jumped several feet in synchronism with the camera or the UFO image was added in later with no electronic smear to make it agree with the building image smear.

Note: this lack of image smear of th UFO when the building edges are smeared occurs when the image moves from hand shake. The amount of smear varies with the amount of hand shake, of course. VideoMeister (Jeff Sainio) plotted the edge smear as a function of hand vibration magnitude for buildings and the UFO. The building edge smear increased with image motion from frame to frame. The UFO edge smear didn't increase. (to be published in MUFON Journal)

I suspect that VideoMeister's reference to the distant building showing more smear is really a result of the lower contrast of the more distant building against the background sky.

Electronic noise makes all edges somewhat diffuse (or adds to the natural "diffuseness" of the optically created image).

This electronic noise plays a greater role, proportionally, in determining the diffuseness of a low contrast edge (distant building) than a high(er) contrast edge (closer building).

The "stochastic noise" probably refers to the electronic noise which is a statistical "thing" (analogous to film grain noise) and the digitizing and thresholds refer to the fact that a

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computer version of an analogue signal is never a perfect
rendition of the signal, but only an approximation which can
introduce its own 'noise' or, in this case, diffuseness of an
edge.
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