

# North Korea's Space Control Centers: Implications of Interior Rearrangements

Note of Interest

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- “Launch Control Center” at Sohae rocket launch base
- “General Satellite Control Center” outside Pyongyang
- Between April & Dec 2012, significant changes in interior architecture and monitoring equipment are seen in both. Views of GSCC from 2009 launch show only minor differences.
- Changes have implications for possibility of duplicate GSCC facility, for degree of “*Potemkin-ing*”, and for severe shortfall of controller monitoring equipment
- Other more far-reaching implications possible
- Images by James Oberg, and from KCNA [DPRK] and world media



Satellite overhead imagery

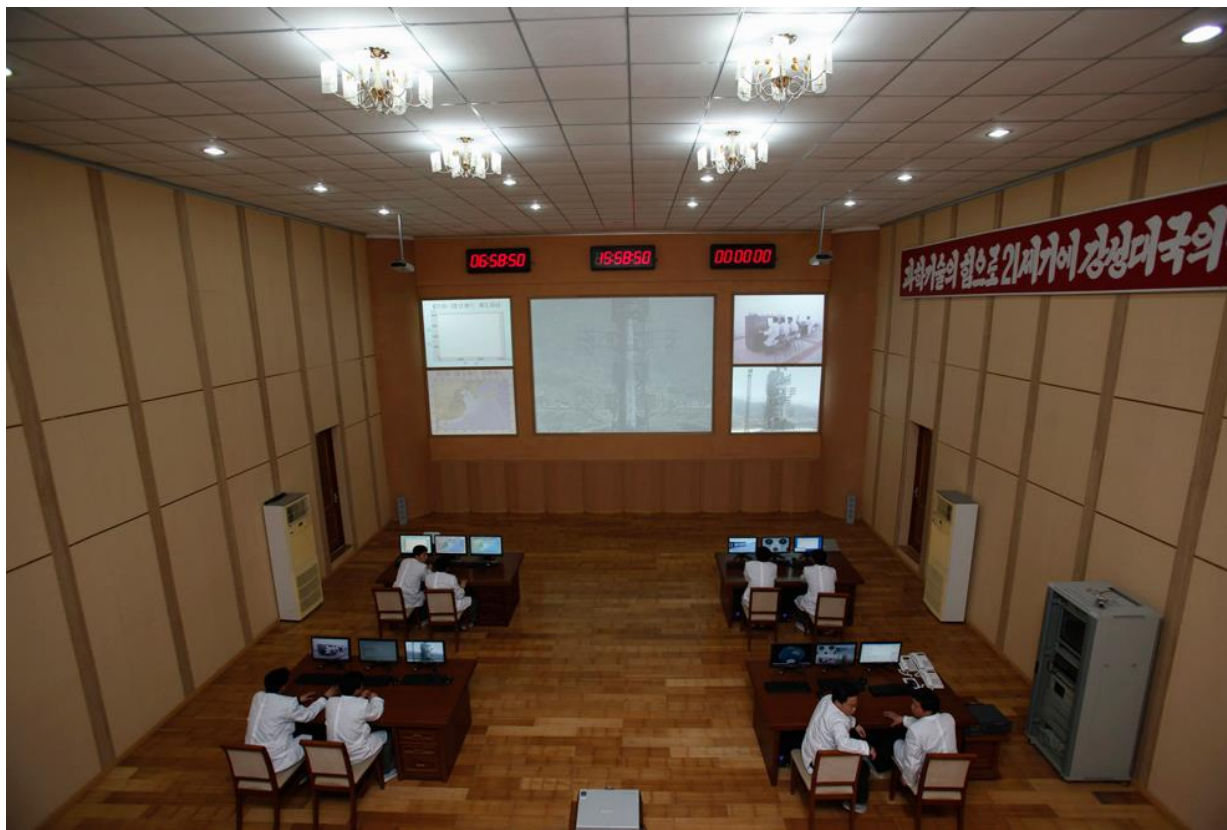


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LAUNCH CONTROL CENTER [LCC] at Sohae – April 2012 press access

# LCC Main Hall



April 2013 --

Four tables with 3 flat-screens each

Front-projector front wall display

Civilian specialists

Wooden slat floor

# LCC [April 2012] controller workstation closeup



*LCC [April] closeup of flatscreens and “U”-mounts*



# General Satellite Control Center

- \* Half-hour bus ride NE of Pyongyang
- \* Never before visited by foreigners
- \* Site probably pinpointed by one newsman w/ wristwatch-GPS [not me]



# General Satellite Control Center



Welcome To The General Satellite Control Centre!







# General Satellite Control Center

2009 versus Apr 2012



The control center we saw in April 2012 [top] was only slightly changed from the one shown briefly on television for the 2009 satellite launch attempt [bottom]. Display screens were wider and a middle one had been added at each console. The chairs were different but filing cabinets at end of each console seem identical. Unknown fixture atop cabinets in 2009. But even keyboards look indistinguishable.

KCNA



GSCC

April 2012 --  
Foreign press  
corps in  
viewing  
gallery [me  
and director  
at center of  
cameras,  
above left]

Official KCNA photo from floor  
shows curious view of back of  
consoles -- mostly empty space!

Space appears to house modem  
for feeding flat screen display.  
Brightness-enhanced view seems to  
reveal reverse of front display.



December 2012 DPRK TV includes scenes of VIP visit to GSCC for launch preview



VIP visit [above] clearly was to same building we saw in April 2012 [below].



Most Surprising Find: Significant differences between April & December configurations of center

*MAJOR REMODELING  
OR  
DIFFERENT FACILITY?*



[ABOVE] April 2012

- Left & right walls altered
- Control consoles replaced
- Floor tile edges darker
- Main screen projector gone
- Multi-screen front displays?
- Right wall units atop platforms



[LEFT]  
December 2012



GSCC Front  
Screens

April 2012



December 2012

*Brightness  
artificially  
accentuated  
to bring out  
some subtle  
surface details*

## Sohae LCC interior in December 2012



DPRK TV documentary on successful launch, showed Kim pre-launch visit



# Changes to the Launch Control Center [Sohae]

April 2012 [left]

December 2012 [below]

Unchanged: floor paneling, walls, free-standing equipment, main control panel, front TV screens, corner floor-to-ceiling wire run.

DIFFERENT: Controller consoles, tables/chairs, front bottom panel, nature of personnel at consoles.



Did LCC flat-screens [April 2012] then swap out to GSCC [December 2012]?  
Apparently NOT – so where did they go? And whence the new screens?



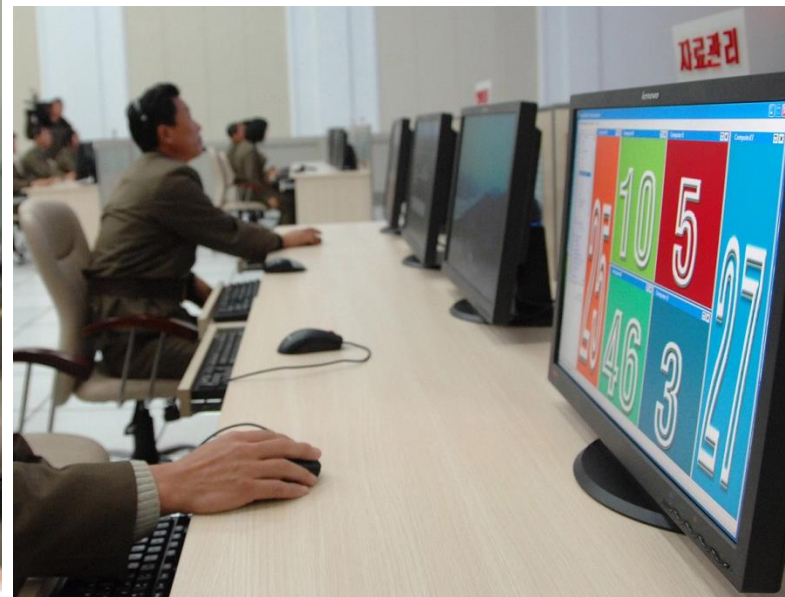
LCC [April], left

Gone by December

\*\*\*\*\*

GSCC [December],

bottom



New in Dec.





APRIL 2012

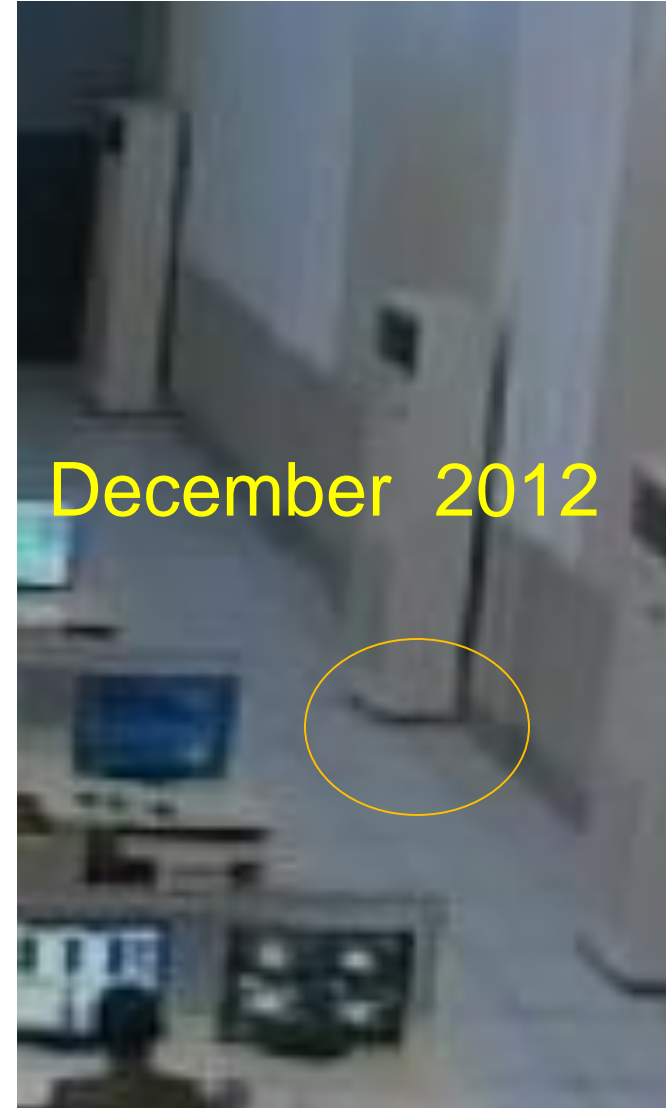
Official images from LCC floor confirms: April view of civilian technicians with real flat-screens replaced by hollow consoles for December photo-op.

These consoles with mostly empty space, containing a flat screen and MODEM [?], look identical to the consoles seen by us at GSCC the previous April. Visitor [background] is Kim Jung Un, which perhaps explains why operators are all young military personnel.



DECEMBER 2012

Minor [?] change: In GSCC, wall unit [A/C?] was atop box in April, then on floor in Dec.  
*Significance [if any at all] unknown.*



Perhaps floor was raised to provide more cable run space?

# 'Hollow-Box" Consoles – Rear Projection?



Brightness-enhanced official photograph shows puzzling screen display images INSIDE the interior of the box – does this suggest a very low-tech rear projection display, instead of CRT or modern flat-screen LED?

# Discussion

Explanation of differences not clear

Implications of console hollow-box design not clear.

No images of 2009 Musudan LCC

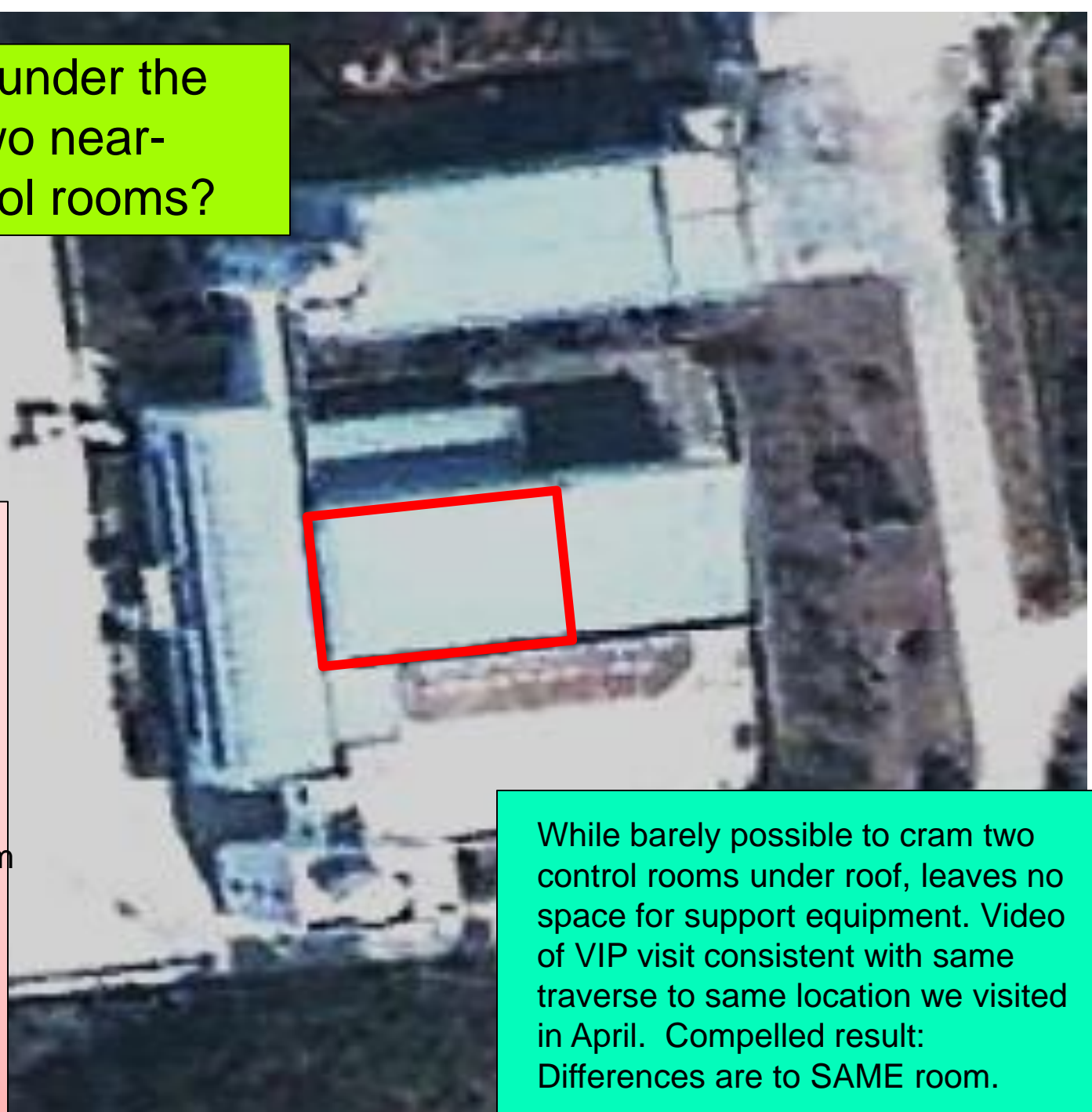
Presumption that April GSCC 'hollow consoles' were shipped to LCC – why?

Is there room in GSCC building for second control room?  
Maybe yes, but then nothing else, no tech support room.

Motivation to build second GSCC obscure.

Kim visit videos [December 2012] strongly consistent with visit to very same room we saw, in same location.

Is there room under the one roof for two near-identical control rooms?



Exterior scale based on known height [me] to doorway height to overhang width to roof dimensions.

Interior scale based on console/chair size to floor square size to room width & length.

Results match with actual remembered interior traverse.

While barely possible to cram two control rooms under roof, leaves no space for support equipment. Video of VIP visit consistent with same traverse to same location we visited in April. Compelled result: Differences are to SAME room.

Changes to LCC front display screen centered on replacing front-projection displays with array of TV screens [note missing screen at lower right], changes to front paneling.



These changes, although less extensive than GSCC changes, support theory that GSCC also underwent even more massive redecoration in same time frame.



# Provisional Conclusions

## DRAFT

- Changes may have implications for possibility of duplicate GSCC facility, although I have come to doubt it.
- Changes have implications for degree of “*Potemkin-ing*”, i.e. presenting fake equipment for viewing by visitors and media.
- Changes have implications for severe shortfall of controller monitoring equipment – perhaps display consoles were removed for use in other hi-tech projects, between launches
- Other more far-reaching implications possible

NOTE: Dec VIP visit to LCC included special display poster





# 서해위성발사궤도

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