New Horizons MVIC Data review

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- 1. Datasets overview
- PDS version: PDS3
- 2 data sets from the Multispectral Camera of RALPH instrument

nh-a-mvic-2-kem1-v4.0

nh-a-mvic-3-kem1-v4.0

- Level: 2 raw and 3 calibrated
- Mission phases:

KEM1 v4.0 added new data (data downlink before 05/01/2020)

• Datasets comparison:

	Version 2.0	Version 3.0	Version 4.0
Image number	77	254	321
Time range	2018-08-31	2018-08-31	2018-08-31
	- 2019-01-01	- 2019-03-20	- 2019-09-02

- No new SPICE data provided for this review. No shape model provided too.
- Summary: Both level 2 and 3 datasets are well produced, and well documented. Find very minor issues.
- 2. Review process
- All processing and evaluation:



- Compare difference between different level and different version sets with tools:
 - FileMerge 2.9.3
 - Beyond Compare 4.3.3
- Read all .fit and label files (all can be read correctly).
- Check the headers and labels
- Compare catalog files in all datasets, and analyze the difference
- Compare documents in document/directory

- Collect aspect data from all image headers, check consistency between levels
- 3. Catalog/Document/Index

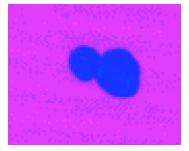
Labels:

- Some .tab and .fits in calib or doc folder is exactly the same as the previous version. But some "PRODUCT_CREATION_TIME" in their attached .lbl changed, while some didn't. Please be consistent.
- I couldn't find any new calibration explanation/changes related to the newly added "Radiometric calibration" and "solar star calibration" data sequences. Not sure if the calibration should be updated with these observations, just worth mentioning.
- Noticed a few target SPK were removed from V4.0 data labels such as Makemake. Why?

, "kbo_centaur_20200430.bsp"	()	
, "nh_extras.bsp"		, "nh_extras.bsp"
, "nh_stars.bsp"		, "nh_stars.bsp"
		, "nh_1994_JR1_20160728.bsp"
, "2002_KX14_20160411.bsp"		, "2002_KX14_20160411.bsp"
		, "nh_2011_HF103_20181027.bsp
, "nh_2011_HJ103_20170920.bsp"		, "nh_2011_HJ103_20170920.bsp
		, "nh_2011_HK103_20180821.bsp
		, "nh_2011_HZ102_20181203.bsp
		, "nh_2011_JA32_20180606.bsp"
		, "nh_2011_JW31_20181004.bsp"
		, "nh_2011_JY31_20180905.bsp'
		, "nh_2011_JX31_20200523.bsp'
, "nh_2012_HE85_20170808.bsp"		, "nh_2012_HE85_20170808.bsp'
, "nh_2012_HZ84_20170808.bsp"		, "nh_2012_HZ84_20170808.bsp'
, "nh_2013_LU35_20171205.bsp"		, "nh_2013_LU35_20171205.bsp'
		, "nh_2014_0E394_20180515.bsp
		, "nh_2014_0J394_20180419.bsp
		, "nh_2014_05393_20190110.bsp
		, "nh_2014_PN70_20190324.bsp" , "nh 2002 MS4 20160728.bsp"
		, "nh_Quaoar_20180613.bsp"
, "Huya_20160411.bsp"		, "Huya_20160411.bsp"
, huyu_20100411.05p		, "Makemake 20160411.bsp"
, "Pholus_20160411.bsp"		, "Pholus_20160411.bsp"
, "nh nep081.bsp"		, "nh Haumea 20200303.bsp"
, "nh_urall1.bsp"		, <u></u>

4. Data

Files can be correctly read by python, IDL and ds9. No checking on geometry this time.



5. Conclusion: these v4.0 datasets are **certifiable**.