Interactive comment on "Identification of high risk zones for geological origin hazards using PALSAR-2 remote sensing data: Kelantan river basin, Peninsular Malaysia" *by* A. Beiranvand Pour and M. Hashim

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This paper and previous work have published by authors are doubtful. The authors do not understand the mechanism of polarimetric SAR data processing. It seems that authors are experts in dealing with composite colour images which can be done by any software, including Photoshop.

The authors have claimed that L-band with different polarization is able to penetrate ground/soil which are located under heavy vegetation covers. How deep of L-band penetration with different polarization data? With this regard, authors are required to

model penetration depth with different polarization data. As I know this study area is located in tropical zone. So what is the effect of soil moisture on radar signal's penetration depth?

What types of speckles are contained with polarimetry data to be removed by directional filter?

How did authors avoid artefacts produced by directional filter? I think authors are required to show us mathematically the equation used with directional filter and how does it work with polarimetry SAR data?

Authors are not familiar with dealing with SAR data as they said that "Additionally, L-band is less affected by the growth of vegetation, which is useful for SAR interference analysis (Interferometry)." So what about TanDEM-X data?

In addition, authors are still proving them poor knowledge regarding dealing with SAR data processing as said" Compared to shorter wavelength SAR when some diastrophism takes place due to an earthquake or a volcanic activity and floods or landslides caused by a natural disaster "This sentence said the rest of SAR data are not accurate with dealing with nature disaster which is scientifically wrong. I think both authors are well practicing copy and paste by using rephrasing software as this common activity in this type of low class education and Research University.

Moreover, authors are claimed that they are only users of PALSAR-1/2 for geological mapping "To date, few studies used L-band SAR remote sensing data for Geological structure mapping in tropical environments (Pour and Hashim, 2013, 2014a,b, 2015a,b)." I went through these doubtful publications even are published in high impact factor journals, which are wrong scientifically as the gold is required geophysics equipment, chemical analysis and gold is located in deep ground with more than 40 m so how PALSAR will penetrate this depth?

I just like to show everyone how wrong scientifically paper can be published by help of

network or chief editor boards.

Although the authors have stated that high potential zones for natural hazards of geological origin hidden by dense rainforest but they cannot develop system or technique based on PALSAR data to detect geological features are hidden under rainforest.

The objectives of this study are ambiguities and cannot be achieved by using directional filter?

In section 3- Materials

The authors in spite of they are staying in tropical area so they do not know what the different between dry seasons and dry soil "Hence, SAR data acquired during dry seasons contain more useful information for detailed geological structural mapping in tropical environments".

Did the authors measure the soil moisture under heavy rainforest? In addition,

The authors claimed using cross-polarization. Can authors show the proof figure of cross-polarization?

Authors are required to prove what they stated "Therefore, HV polarization channel records more geological features that cover by dense vegetation".

Authors are required to show the low and high frequency details in PALSAR data in quantity forms. How mathematically as authors are dealing with mapping and polarimetry data processing, convolution filter can be used to detect low and high frequency in PALSAR data?

Authors are required to prove that medium filter has reduce the noise in polarimetric SAR data.

Authors are required to prove that directional filter can solve shortening and overlaying of features.

The authors are delivering cheating work : they said the data collected (June to August, 2015) and field data are collected out of this date. It means the ground data did not coincide with PALSAR-2 overpasses.

In addition, how the authors collected landslide data, I think this is required geotechnical equipment? How did the authors correlate rock data, with PALSAR-2 data?

How authors did collected 453 landslide affected locations and then detected them in PALSAR data?

How did authors use old data of "Department of Minerals and Geoscience Malaysia, 2003" with PALSAR-2 data 2015? As authors mentioned the study area was exposed to flood disaster during 2015.

Results section:

The work in polarimetry data cannot be produced by composite RGB colour which is false colour. This is required dealing with designing mathematical algorithms either for automatic or semi-automatic object detections in polarimetry data. It is clear that authors just draw manually by whatever image editing software. This type of work delivered wrong information for readers, students and experts

How did authors overlay old topography data with new palsar data even the time difference is 12 yrs. see Figure 4?

Figure 5 is output of directional filters, in this figure directional filter is produced wrong information as indicated in stripping zone of the image. Authors try to convince us wrongly by manual drawing (in red colour) that features are delivered by directional filter. Scan SAR is low resolution data so how directional filter can produce accurate features?

Figure 6 is fine mode data which contains a lot of polarimetric SAR problems which does not coincide with results of figure 7. It is clear that authors overlaid optical data with fine PALSAR mode data.

Figure 8 cannot be derived from directional filter as direction filter not same Hough and Canny algorithms which producing vector layers. I think the authors just overlaid the digitized vector topography map on fine mode palsar-2 data.

Another cheating procedures are very clear in Figure 9 as the authors overlaid the Figure 8 with a claimed DEM. It is not DEM, I think the authors have used colon table in ENVI to produce just fake DEM in fine PALSAR mode data.

In conclusion section, authors stated that "Results of this investigation indicate that the PALSAR-2 onboard the ALOS-2 has proven to be successful advanced remote sensing satellite data for disasters monitoring in tropical environments" what is the proof? I do not see any proof has shown through the output figures!

In addition, authors concluded that "In conclusion, the results of this investigation has great potential assistance in terms of total solution to flood disaster management in the Kelantan river basin by providing important source of information to assess the potential for many natural hazards of geological origin. " However authors never provide any detection of flooded area in PALSAR-2 data!

Finally, I do not advise publishing this wrong scientifically work in polarimetric SAR data. The novelty of polarimetric SAR data theory is absent in addition to the novelty of image processing procedures have been used in this work.

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