Test title

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1 Introduction

https://www.imechyperspectral.com/en/applications/hyperspectral-remote-sensing
https://www.youtube.com/watch?v=RZu1LHumbiQNCstateuniversity

What is it and what is it used for- images of system and example images the system creates

Two articles to rule them all:

- https://www.enmap.org/data/doc/Science_Plan_EnMAP_2022_final.pdf
- https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=9463743

2 Brief history

https://www.nasa.gov/topics/earth/features/eo1-10th.html

Who/when was it developed and for what purpose

https://www.photonics.com/Articles/Measuring_the_Earth_from_Above_30_years_and/a47298 https://nij.ojp.gov/topics/articles/hyperspectral-imaging-and-search-hu
https://www.sciencedirect.com/science/article/abs/pii/S003442570900073X

How has it evolved

3 Use today & limiting factors

https://gisgeography.com/hyperspectral-imaging/ https://hyperspectral.azavea.com/

Is it expensive, bulky, easy to use, can anyone use it

Safety aspects, waste (toxic chemical, environmental effects)

4 How is the image formed

How is the instrument constructed

https://www.mdpi.com/1424-8220/19/14/3071#B26-sensors-19-03071
https://archive.ll.mit.edu/publications/journal/pdf/vol15_no2/15_2-08.pdf
https://www.eoportal.org/satellite-missions/eo-1#hyperion

What is the energy source

What signal is detected and how

5 What property of the sample is imaged?

https://archive.ll.mit.edu/publications/journal/pdf/vol15_no2/15_2-08.pdf

Chemical property or density or something else

Is the sample prepared somehow

If so, how does that influence the image (limit resolution, change what property that is imaged, etc.)

6 Resolution and sample size

What is the typical resolution in the different dimension (x,y,z,t, etc.)

Spatial resoltuion reduced compared to multispectral, hard or impossible to have many bands and high resolution
https://ieeexplore.ieee.org/abstract/document/978246 resolution 30m ground,

What limits the resolution

What sample size is typically imaged

7 Cost and limiting factors

How much does a system cost?

https://spaceflightnow.com/2022/03/31/german-imaging-satellite-gets-top-billing-on-next-sp

What level of expertise is required by the user? Can anyone use it?

https://www.dlr.de/eoc/en/desktopdefault.aspx/tabid-5514/20470_read-47899/

What factors are limiting its use?

8 Variants and future use

https://www.esa.int/Enabling_Support/Space_Engineering_Technology/Hyperspectral_imaging_by_CubeSat_on_the_way

https://www.mdpi.com/1424-8220/19/14/3071#B26-sensors-19-03071

https://www.imechyperspectral.com/en/applications/hyperspectral-remote-sensing

Any special variants worth mentioning

Where is the imaging technique heading?

Where do you see it used in the future?