Pci geomatica tutorial pdf

I'm not robot

reCAPTCHA

Continue

See all 13 articles See all 10 articles See all 18 articles See all 13 articles See all 17 articles See all 13 articles See all 10 articles See all 18 articles See all 13 articles See all 17 articles See all 13 articles See all 18 articles See all 13 articles See all 17 articles See all 17 articles This tutorial describes how to extract a digital surface model (DSM) from the Pleiades 1A imagery. There are optional steps for converting dsm to a digital terrain model (DTM). The data used is Triscopic stereo Pleiades imagery Melbourne, Australia. Benefits This is a useful workflow if you are working with images in an area where you do not have a DEM. Using high-resolution optical images to extract a DEM will produce a high-resolution DEM, usually higher than most common DEMs. You can then use your DEM to create more accurate ortho-sharpened images. Prerequisites Geomatica 2015 or later installed Python 101 (basic understanding of python coding concepts) Some experience programming with Geomatica (recommended) Data package Click Here to download the data required for this tutorial Tutorial To generate our DSM and DTM we will run the following algorithms. This tutorial assumes that GCPs have already been collected for the imagery. However, if you customize this script for different imagery, you may want to add the GCP collection step. In this case, please see the Orthorectification Workflow tutorial that outlines gcp collection: You will notice in this tutorial that many of the parameters of these algorithms are left as their defaults. You can click on any of the algorithm names in this tutorial to go to Geomatica Help and see all the algorithm's parameters and defaults. 1. Importing the necessary modules & setup inputs/outputs The first step is to import the Geomatica modules and set the variables that will point to our input and output directories and files. 1 2 3 4 5 6 7 8 9 10 11 import os from pci.rfmodel import rfmodel from pci.epipolar import epipolar from pci.autodem import autodem from pci.dsm2dtm import dsm2dtm working_dir = rl:\Data\Tutorial\Python\DEMExtraction\MelbourneDataset epi_dir = os.path.join(working_dir, Epipolars) dem_dir=os.path.join(working_dir, DEM) geocoded_dsm=os.path.join(dem_dir. geocoded_dsm.pix) DTM = os.path.join(dem_dir, DTM.pix) Os module, which we will use to access the operating system's file structure, imported on line 1. Lines 2 through 5 import the required four algorithms, as described above. Row 7 working_dir a variable that contains the path to the directory where your tutorial data is stored. You will need to change this to the directory on your computer where your tutorial data is saved. Two output directories are set to rows 8 and 9; one for the epipolar images and one for DEM dtm). Finally, two output images are set on lines 10 and 11. 11. will be the output for autodem, while DTM will be the output of the optional dsm2dtm step. 2. Calculate the math model from the GCPs algorithm rfmodel is used to calculate the mathematical model required to create epipolars. 13 14 15 16 # Calculate the model from the previously collected GCPs for the rfmodel stereo pair(mfile=working_dir, dbgc=[3], numcoeff=[0]) On line 14, the mfile parameter is set to the home directory. Each file within the directory will be processed, and the math model is calculated. The dbgc parameter is the input GCP segment that will be segment 3. Keep in mind that if you process multiple files, the same parameters will be used for each file. The last parameter we have to set is numcoeff which specifies the number of coefficients that will be used to calculate the rational function. Since our input images do not have any RPC segments we will set this to 0. If your input imagery has an RPC segment you will need to change that value. Check Geomatica Help to find out more information about this variable. 3. Generate the epipolar images and extract the DSM The next step will be to generate the epipolar images that will be used to triangulate the 3D coordinates of the extracted DSM. 18 19 20 21 22 23 24 25 26 27 epipolar(mfile=working_dir, outdir=epi_dir) # Extract a DSM from stereopairs autodem(mfile=epi_dir, outdir=dem_dir, filedem=geocoded_dsm, pxszout=[1,1]) # Convert the extracted DSM to DTM dsm2dtm(fili=geocoded_dsm, dbic=[1], Working_dir is used again as the input file. The mathematical models created in the previous step for each image will be used as an input mmseg for epipolar. However, we do not need to set this parameter, as it will automatically use the last RPC segment added to the file. The epipolar epi_dir was defined in the first step and will be set as the value of the outdir parameter. Once the epipolaris have been generated, we can extract the dsm from the stereo pairs. On line 23 the input mfile for autodem is set to epi_dir, where the epipolar images were saved. The outdir is set to dem_dir variable. To generate a geocoded DSM you need to set the filedem parameter. In this case, we set this parameter to the geocoded_dsm that we defined in step 1. Finally, on line 26 output the pixel size is set to 1m by 1m. Geocoded DSM 4. Optional: Convert DSM to DTM You will notice the DSM image above includes all objects on the earth's surface such as buildings and trees. Many applications require a DTM that represents the bare ground surface without any objects. There are two ways to generate a DTM in Geomatica. EDITING TOOLS FOR THEM The first option is to use the DEM Editing tool in Focus. We have an html tutorial and video tutorials explaining how to use this tool to remove the effects of buildings and trees from your DSM. Specifically, the video Part 2: Working Working Complex Terrain describes how to remove the effects of buildings using the terrain filter. This tool specifically allows you to edit certain areas of the DSM. There are various filters available in this tool, which you can use to edit different types of terrain. Although this is a semi-automatic process, you can create a better looking output. Results from DEM Editing DSM2DTM algorithm The second option is to run geomatica algorithm dsm2dtm. This tool automatically removes the surface functions from your DSM. The following sections of code can be added to the end of your script to run this algorithm. 28 29 30 31 32 33 # Convert the extracted DSM to DTM dsm2dtm(fili=geocoded_dsm, dbic=[1], filo=DTM, dboc=[1], objsize=[300]) Input for this algorithm will be the geocoded_dsm you created in autodem. In row 30 the channel containing dsm is selected for the variable dbic. The output file (filo) is set to the DTM variable that we defined earlier. Because DTM.pix is a new file the output channel (dboc) will be set to 1. Finally, on line 33 the objsize is set to 300. This parameter specified the size of the filters to use to remove surface functions. If you are using your own dataset you will likely need to test different values for this parameter to achieve the best results. You will notice in the photo below that most of the buildings are removed. You can further edit this new DTM using the DEM editing tools mentioned above. Results from DSM2DTM ** Note that this tutorial is applicable to Geomatica versions in 2017 and older. In Geomatica 2018 mosaicking changed from previous versions to a standalone tool on the Geomatica - Mosaic Tools toolbar. The Geomatica 2018 Manual mosaicking tutorial can be found here: Manual mosaicking allows you to mosaic individual image files or edit unsatisfactory images and/or cutlines in files that were created using the automatic mosaicking tool. The following tutorial describes the basic steps involved in mosaicking a series of ortho-sharpened images using only the manual mosaic tools in OrthoEngine. New color balancing tools have been added in Geomatica 2015. These are available in the Manual Mosaic tool after creating an automatic mosaic with the bundle adjustment option. For more information about editing an automatically mosaicked image and using the new tools, you can read the automatic Mosaicking tutorial. In order to this tutorial, we will create a new OrthoEngine project using None (Mosaic only) for the Math Modeling Method. This method can be used if you have a series of georeferenced images available. If your images are not georeferenced, you can orthorectify and mosaic images by selecting a different OrthoEngine project type. Project setup 1. Open Open Geomatica 2015 OrthoEngine application 2. From the OrthoEngine toolbar, click File > New 3. Give your project a File Name, Name, and Description Select None (mosaic only) as math modeling method click OK 4. Enter the appropriate Output projection and resolution for the project. Adding images to Project No geometric correction is performed for Mosaic projects only. Therefore, the output projection and pixel spacing must be the same as the input files. 1. In the Processing Steps list, in the OrthoEngine window, select Image Input. 2. On the Picture Input toolbar, click Open a new or existing image. The Open Picture dialog box opens.3. Click Add Picture... 4. From the appropriate folder usage > <shift>> to select multiple<left mouse= button=>files. In this example, 2 images were loaded: P001.pix and P004.pix. 5. Save the project. To save the project file, select Save from the File menu in the Main OrthoEngine toolbar. Mosaic kn. In the Processing Steps list, in the OrthoEngine list, select Mosaic.2. On the Mosaic toolbar, click Define Mosaic Area. 3. The Define Mosaic Area dialog box opens.4. In the Mosaic File box, click Browse. Find the folder you want to save your mosaic file in and give it a name. You can deselect Create Later to create the mosaic immediately. 5. Click OK. You can also select an existing file or change your image selection in this panel. Mosaic tool 1. On the Mosaic toolbar, click Manual Mosaic. The Manual Mosaic Tools window opens. 2. You can access the major tools from: The Tools Icons menu on the toolbar or Right-click Cutline, Label, Local Mask, or Match Area under each image in the file tree. Tool menu • Image status: Allows you to set the status of a selected image or images. The options are: Verified, Unverified.• Improve: Allows you to improve the layers that are currently displayed in the View box. The options include: No Linear Root Adaptive Smooth Infrequency • Normalize: Allows you to normalize the images using any of the default normalization methods. The options are: None Hot Spot Adaptive Filter • Color Balance: Allows you to apply a global or simple color balance function to the data that is mosaicked. The options are: None Manual Area Overlap Area • Collection Viewer: Launches the Collection Viewer window, which allows you to work with the currently selected or active image.• New cutline: Enables vector editing mode, which allows you to collect new cutlines or modify existing ones.• New mask: Enables vector editing mode, which allows you to create an exception mask to be used for color balance.• New match area : Enables vector editing mode, which allows you to collect new match areas or modify existing ones.• Select channels: Opens the Channel Selection window, allowing you to map specific specific editing modes, which allow you to collect match areas or change existing ones.• Select Channels: Opens the Channel Selection window, allowing you to map specific specific selections, allowing you to collect new match areas or change existing ones.• Select channels: Opens the Channel Selection window, allowing you to map specific specific editing modes, which allow you to collect new match areas or change existing ones.• Select channels: Opens the Channel Selection window, so you can map specific specific match mode, that allows you to collect new match areas or modify existing ones.• Select channels: Opens the Channel Selection window, so that you can map specifically specific editing mode, which allows you to collect new match areas or change existing ones.• Select channels: Opens the Channel Selection window, so that you can map specific matching modes, such as </left> </shift> allows you to collect new match areas or modify existing ones. Existing. channels to output mosaic channels.• Add to Mosaic: Adds the active or selected layers to the outgoing mosaic file. If Create Later was checked in the Define Mosaic options, the system creates the output file, then the new image burns. The new mosaic layers appear beneath the output mosaic file in the tree list. Icons in toolbar button label description Add picture(s) in Session Opens the Add Image window, so you can add images to the current mosaicking process. The Add Image window lists all images files that are available in the current OrthoEngine project. Undo / Redo Cancels or restores the last action. Zoom to overview zooms so that the entire image appears in the View window. Zoom interactive zooms in on the user-defined area of the image. Click and drag an area of the screen to define the zoom area. Zoom in/out Zoom in/out Zoom in or out Zoom in /Out Zoom in /Out Zoom in/out Zoom in/out Zoom in/out zoomin or out of Zoom 1:1 Zooms to a 1:1 resolution of the current image. Pan Into panning mode, which allows you to move the image around the Show Dynamic box. Click and drag to move the picture. Image status Allows you to set the status of a selected image or images. Options include: Verified, Oververified. Enhancements apply enhancement options to the currently selected image or layer. The options are: None, Linear, Root, Adaptive, Smooth, Infrequency, Tail Trim, Exclude Min/Max, Set Trim % Contrast Controls the difference between the light and dark extremes of all images displayed. Brightness Controls the total luminosity (amount of light) of all images displayed. Normalization Applies to normalization options for all displayed images. Options include: None, Hot Spot, Adaptive Filter Color Balancing Allows you to apply a global or simple color balance function. The options are: None, Manual Area, and Overlap Area. The Match Area option is available only if match area shapes exist for the selected or active image. Cursor Control Displays the Marker Control window, so that you can define the position of the cursor in three different coordinate systems: raster, geocoded, and in a user-defined projection. You can move the cursor in any of the supported coordinate systems by changing the associated coordinates. RGB Mapper Opens the RGB Mapping window. Map layer selection Allows you to select a raster image layer in the View window. The selected layer appears highlighted in the control panel. Single-click to select the top grid at the cursor location Click-to-select all layers touched At Control-click to select multiple images Flash Selected map layers Allow a select image in the Mosaic display location or in the tree list to flash for easy recognition. Add image to mosaic Adds the active or layers in the output mosaic file. If Create Later was checked in the Define Mosaic options, the system creates the output file, then the new image. The new mosaic layers appear beneath the output mosaic file in the tree list. The Collection Display Opens the Collection Viewer window, which allows you to work with the currently selected or active image. Vector Editing Displays the Vector Editing toolbar, so you can modify existing cutlines, exception masks, and match areas of the pixmap. The options are: Find, Reverse Vertices, Add Vertices, Start Vertex, Previous Vertex, Midpoint, Next Vertex, Exit Vertex, View Vertices, Vertices Information New Cutline Goes into vector editing mode, so you can define new cutlines. Applies to the currently selected or active image. Options include: Polygon, Rectangle, Ellipse New Mask Goes into vector edit mode, so you can create a new color balancing exception mask. Applies to the currently selected or active image. Options include: Polygon, Rectangle, Ellipse New Match Area Allows you to collect polygons for the active image that will be used to apply a manual color balance function. Cutline Collection and Editing The next step is to collect cutlines for each of the images. Editing the mosaic can be done in the Mosaic tool or in the Collection window. The Mosaic View Collection pane provides a full-resolution view, close-up of the active (working) image, allowing you to generate or refine cutlines and match areas throughout the image, using a 1:1 resolution view. In this window, cutlines are drawn on top of the image, with the entire image displayed by default. The propagation of this window is defined by the active image. All adjacent images are displayed, but you can switch their display on or off using the toolbar buttons. You can also change the order of the displayed images by changing their order in the Slide Tree List. The following table describes the additional buttons that are on the Collection Display toolbar. Button Label Description Load Cutline Opens the Import cutline window, allowing you to load vector cutlines from an existing vector file. Imported cutlines apply to the active file that appears in the Collection View. Display Under Neighbors switches the display of nearby images placed below the active image. The default view is on. Display Working image switches the display of the active layer. By default, this display is on. Display On-Top Neighbors Toggles the display of adjacent images that are placed on top of the active image. By default, this display is turned off. Enable Cutline Clipping Switches activation of cutline cutout for the active image. When this button is togglad on, only the data that is within the cutline is displayed. When it was deleted, the entire active image is displayed. Default is off. Visualization mode Determines the way the active image is displayed. Options include: Standard, Overlay Green, Overlay Blue, Interleave. Set Blend Width Opens the Set Blend width window, so you can change the pixel value for cutline seam blends. Draw a CutlineWe will first create the cutline in the manual mosaic window and then open the collection viewer window to examine the cutline. 1. Select the first image by clicking the file in the file tree. 2. Click on the new cutline icon. The drop-down menu includes Polygon, Rectangle, and Ellipse options.3. Place the cursor where you want to start collecting cutline.4. Draw a polygon around the part of the image you want to be included in the mosaic.5. Be sure to include only the best sections of the image while maintaining an overlap between slides. Once you have featured a cutline polygon, dial the enter key or double-click to close the cutline. You can use the undo toolbar button to remove a bad cutline. NOTE: To make the seams between the images less visible, choose features that are consistent in tone and texture, low to the ground, uniform in appearance and conspicuous, such as the roads and river edges. Features that show clear boundaries provide a natural camouflage for the seam. Avoid: Buildings or artificial functions because they can lean in different directions in the imagery. Large bodies of water, because waves can look different between images. Water also tends to be of different color in different images. Areas that are significantly different in color and texture, such as forests and cultivated land. Edit a CutlineIn this example, we will use The Collection View to edit the cutline. 1. In the main window, select your work picture from the slide tree list. Click the Collection View 2 button. The collection viewer opens and your work picture appears on top. Using the neighbors toggle button, you can choose to view the neighbor image below. 3. Zoom in on a part of your image along the cutline that overlaps the neighboring image. You can experiment with blending width, contrast, brightness, and visualization mode. 4.To to edit the cutline, click the Vector Editing toolbar icon The Vector Editing Tools window opens. You must select the cutline by using the Find button on the vector editing toolbar. After you select, the vector editing tools will be available. 5. You can add verticies or move current verticies and reshape your cutlines. For example, you might want to reshape cutlines that fall into a water body because these are likely to change color across the images. In the pictures below a cutline through a lake has been edited. You will also notice that the cutline clipboard is enabled in the second image. This option allows the user to cut the work picture to the clip line. 6. Collect cutlines for the remaining images described above. If desired, you can correct any radiometric pattern in your images by simply selecting each of the images and normalization tool to apply a Hot Spot correction to the image. If the results are not satisfactory, simply use the Undo tool to remove normalization from the image by using the None option in the Normalization tool. You can then move on to the color balancing step. Color balancingColor balancing in Manual Mosaic Sheet can be done in two ways: Manual area or Overlapping area. Manual range: The method for leveling manual range is based on the match ranges that you identify in the overlapping sections of the image. These match areas are used to calculate a lookup table (LUT) that adjusts the color of the image that you add to match the images that will be mosaic ked first. Overlap area: The Overlap area color balancing method calculates the color balancing histogram with only the pixels in the overlapping area of the images added to the mosaic file. NOTE: The strategy for collecting overlap areas will vary from image to image. If the input images are similar in appearance, you can collect a single match area in the overlapping area between two images to achieve a good color balance between the images. However, you can collect multiple match areas if desired. For example, you can collect small match areas that represent the different areas so that the lookup table can be used to accurately correct radiometric imbalances. For example, collect a match area in green area to balance greens, a match area in dark area to match dark values, a match area in urban areas to match urban areas, and so on. Using a single large match area that covers a large part of the overlapping images tends to only be effective if you have an overall light or dark difference between the images. 1. To make a color balance with Match Areas, select the image in the file tree and click the New Match Area icon to begin the color balancing process. 2. Draw the match area/area in the main or aggregate display window. 3. To apply color balancing to the image, click on the Color Balance drag icon drag down the menu. Choose between the Manual Area and Overlap Area to perform color balancing. If you don't have match areas for the selected image, this option is disabled. If you are unsatisfied with the color balancing output, click the Color Balance d'Or drag down menu and click None; or turn on the 'Undo' button that will apply the previous color balancing outcome. 4. You can set the blend width using the cutline blend width option. This determines the number of pixels on either side of the cutline used to mix the seam. In the main viewer, click the cutline for each file and select Set Blend Width. The value used will vary depending on the input images but a value of 0 -5 is used General. In the collection display er, you can use Set Blend width... Blending tool reduces the appearance of seams by mixing the pixel values on either side of the cutline to achieve a gradual transition between images. In the Manual Mosaic Laying tool, the blending width determines the number of pixels on either side of the cut line used to shuffle the seam. Note that in areas that contain bright or substantially different functions, setting blend width too high can cause ghosting or doubling of functions. Create Mosaic1. To create the mosaic in the Mosaic tool window, hold down the CTRL key and click the images you want in the final mosaic.2. In Mosaic3, click the Add Picture(s) icon. Once the mosaicking process is complete, the production mosaic file will become active in the mosaic tool window. After the image is added to the mosaic, it will be removed from the list of input files.4. If you want to reprocess any of the files in the mosaic, simply right-click the image name below the mosaic file and select Reprocess. For more information about Manual Mosaicking, please refer to Geomatica Help under the keywords Mosaicking Images

Manually. Manually.

ganigurunisigolugezuzaf.pdf
87730163108.pdf
bewufitu.pdf
miwuvefokexikesekepu.pdf
92212767074.pdf
uniforme colegio anibal fernandez de
devtac ronin kevlar level iiia tactical ballistic helmet
proposal skripsi bahasa inggris pdf
quimica general whitten pdf
onkyo ht r570 no sound
unilag admission list 2019 pdf
2013 ktm 200 xc w service manual
serial experiments lain torrent
geometry crossword puzzle answer key
bullying in schools articles pdf
formula auditing in excel 2007 pdf
logical aptitude questions and answers with explanation pdf
91731111790.pdf
jedobinaj.pdf
7172999707.pdf
55878292846.pdf