

# **Geoprocessing Raster Dasar**

### Pendahuluan

Serangkaian teknik yang digunakan untuk memproses dan menganalisis data raster dalam sistem informasi geografis (SIG). Data raster adalah data spasial yang direpresentasikan dalam bentuk grid atau matriks sel, di mana setiap sel berisi nilai yang merepresentasikan informasi, seperti elevasi, tutupan lahan, atau suhu.

### **Operasi Geoprocessing Dasar**

Pemotongan (Clipping): Proses yang digunakan untuk memotong atau menggunting bagian tertentu dari dataset raster berdasarkan area yang ditentukan.

1. Siapkan data raster yang akan di clip



2, Siapkan data SHP yang akan digunakan sebagai AOI (Area Of Interest). Bisa dengan data yang sudah tersedia ataupun membuat SHP sendiri dengan menggunakan New Shapefile Layer





3. Pilih tool Raster – Extraction – Clip Raster by Mask Layer



4. Pilih input layer (data raster yang akan di clip) – tentukan mask layer (SHP yang akan digunakan sebagai AOI – Pilih tempat penyimpanan – Run

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5. Berikut hasil proses Clipping





Clipping menggunakan Clip Raster by Extend. Selain Clip Raster by Mask Layer, proses clipping juga dapat dilakukan dengan menggunakan tools Clip Raster by Extend.

6. Raster - Extraction - Clip Raster by Extend



7. Input data yang akan di clipping - pada clipping extend pilih Draw on Map Canvas (menentukan sendiri area yang diinginkan) - gambar AOI - Save



8. Data raster akan terclip sesuai dengan AOI yang kita buat





# Penggabungan (Merge)

Proses menggabungkan beberapa dataset raster menjadi satu dataset baru untuk meningkatkan analisis dan visualisasi data yang lebih luas.

1. Siapkan data raster yang akan digabungkan (Contoh: citra sentinel 2 band 4,3,2 dan 8)



2. Pilih tool Raster - Miscellaneous - Merge

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4. Checklist bagian *Place each input file into a separate band* (Agar data yang digabungkan dapat diolah per bandnya) – Pilih Tempat penyimpanan – Run

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5. Berikut data hasil proses Merge. Susunan band pada citra dapat diedit dengan cara Klik kanan pada layer citra – Properties – Symbology – Render type Multiband color – Sesuaikan susunan band seperti pada spesifikasi band citra satelit (Contoh: sentinel 2, Red band 3, Green band 2, Blue band 1) - OK



6. Berikut hasil pengubahan susunan band citra





### Mengubah data raster menjadi data vector

Proses untuk mengonversi informasi berbasis piksel (raster) menjadi format yang lebih terstruktur dan berbasis geometri (vektor). Proses ini sering dilakukan untuk analisis yang memerlukan data vektor, seperti overlay atau analisis spasial lainnya.

1. Siapkan data raster yang akan dikonversi (contoh: data hasil buffer garis pantai)



2. Pilih tool raster - Conversion - Polygonize (Raster to vector)





3. Pilih input data yang akan dikonversi – Save File – Run

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#### 4. Berikut hasil dari konversi



5. Data vector dapat diedit pada properties – symbology – pilih categorized – ubah value berdasarkan DN – Classify – tentukan warna – OK

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## Menampilkan Contour pada Data Raster (Extract Contour)

Extract Contour adalah proses untuk menghasilkan garis kontur dari model elevasi digital (DEM). Kontur adalah garis yang menghubungkan titik-titik dengan ketinggian yang sama, dan sering digunakan dalam pemetaan topografi untuk menggambarkan bentuk permukaan tanah.

1. Siapkan Data DEM



2. Merge - Extraction - Contour - Atur input file (Data DEM) - Atur interval (10) satuan dalam meter - Ubah attribute name (ELEV) untuk menunjukan nilai dari kontur - Save File - Run





3. Garis kontur akan muncul seperti ini



 Untuk memunculkan angka pada kontur, pilih properties pada layer kontur - Labels - Single Labels -Atur value menjadi ELEV (data ketinggian)

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### 6. Berikut hasil dari labeling data kontur

