

Kuliah Tamu Departemen Teknik Geofisika (29 Agustus 2022)

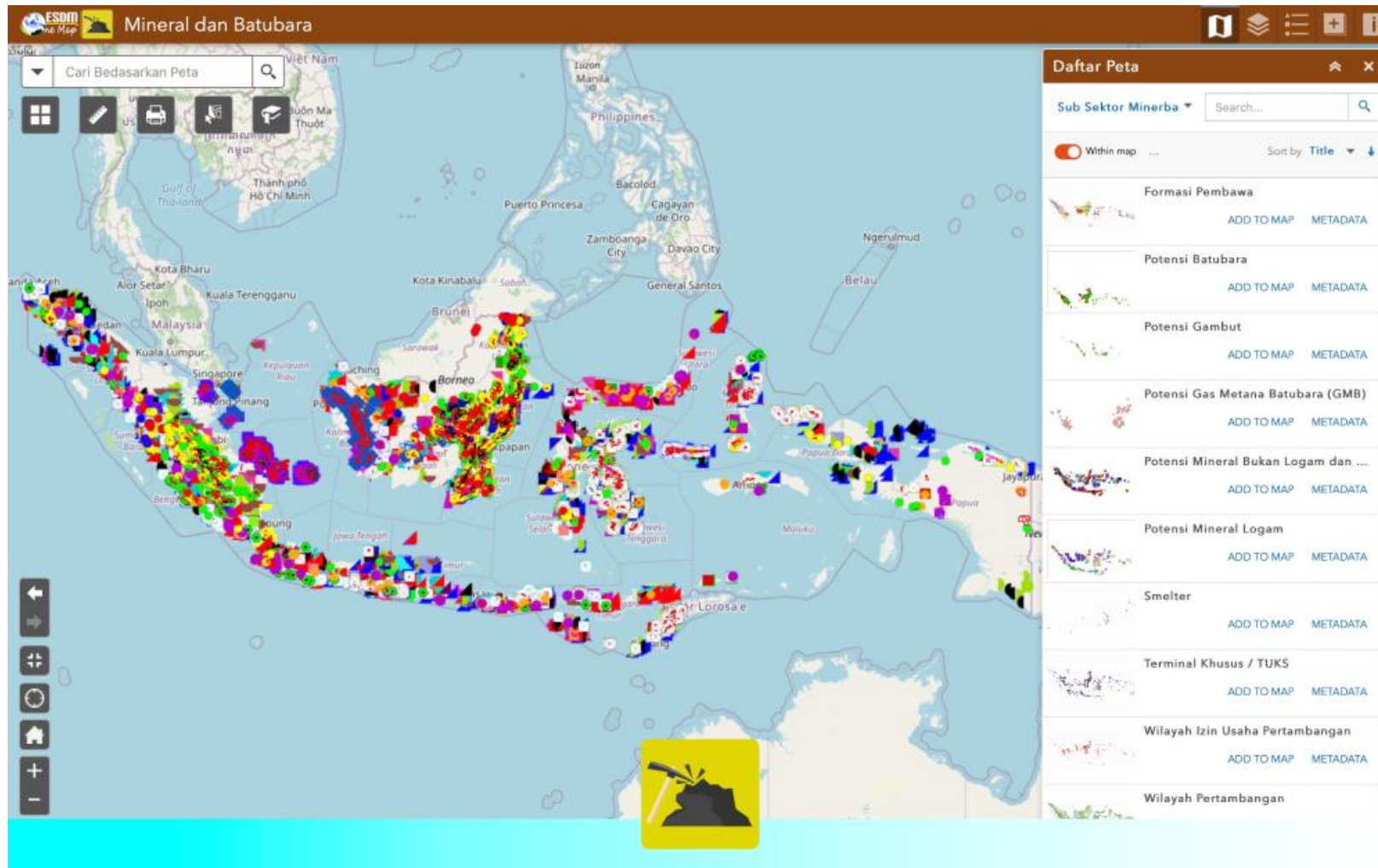
ANALISIS MINERAL DENGAN DATA XRD UNTUK ASESMEN KONDISI LINGKUNGAN

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POTENSI MINERAL DI ALAM



https://onemap.esdm.go.id/map/minerba_1578966781.html

Jenis Mineral Logam	Contoh Mineral Logam dan Kegunaannya	Wilayah Persebaran
Logam Dasar	Tembaga	Aceh, Sumatra Barat, Jawa Barat, Jawa Timur, Kalimantan Barat, Kalimantan Selatan, Gorontalo, Sulawesi Selatan, Nusa Tenggara, Maluku, Papua
	Timah	P. Bangka, P. Batam, P. Bintan, Kep. Lingga, Riau, Jambi.
	Timbal	Sumatera, Jawa, kalimanta, Sulawesi, Papua
	Air raksa	Sumatra Barat, Jambi, Jawa Barat, Kalimantan Barat, Kalimantan Tengah
Logam besi	Besi	Aceh, Sumatra Barat, Lampung, NTT, Sulawesi Selatan
	Mangan	Jawa Barat, Yogyakarta, P. Timor, Kalimantan Timur, Kalimantan Barat, Maluku
	Nikel	Sulawesi Tenggara, Sulawesi Selatan, Maluku
Logam Ringan	Aluminium	Kalimantan Tengah
	Magnesium	Lampung
Logam Mulia	Emas	Sumatra, Jawa, Kalimantan, Sulawesi, Papua
	Perak	Aceh, Sumatra Barat, Jawa Barat, Kalimantan Barat, Sulawesi Utara, Papua
	Platinum	Riau
Logam Radioaktif	Uranium	Papua
	Radium	
	Plutonium	

Logam tanah jarang

Meskipun namanya logam langka , tetapi logam-logam ini cukup melimpah jumlahnya di kerak bumi, dengan serium sebagai unsur paling melimpah ke-25 dengan 68 bagian per juta (mirip tembaga). Meski begitu, karena karakteristik geokimianya, logam langka ditemukan pada kondisi sangat tersebar dan sedikit ditemukan dalam jumlah yang banyak, sehingga nilai ekonominya kecil.

Manfaat

untuk penggunaan teknologi tinggi, seperti pembuatan pesawat antariksa, semikonduktor, dan lampu teknologi tinggi, dst.

Rare Earth Elements

H	Rare Earth Elements																He
Li	Be											B	C	N	O	F	Ne
Na	Mg											Al	Si	P	S	Cl	Ar
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe
Cs	Ba	La-Lu	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn
Fr	Ra	Ac-Lr	Rf	Db	Sg	Bh	Hs	Mt									
Lanthanides																	
La Ce Pr Nd Pm Sm Eu Gd Tb Dy Ho Er Tm Yb Lu																	
Actinides																	
Ac Th Pa U Np Pu Am Cm Bk Cf Es Fm Md No Lr																	

The photograph shows several mounds of rare earth metal powder on a dark surface. The mounds are labeled with their respective element names in yellow text: Gadolinium (top left), Praseodymium (top center), Cerium (top right), Samarium (middle left), Lanthanum (middle right), and Neodymium (bottom center). The powders vary in color, with some appearing white, grey, or dark grey.

Karakterisasi Mineral



Software analisis

▶ Semi kuantitatif → Match!

▶ Kuantitatif → Rietica

The screenshot displays the Match! software interface. The main window features a plot of relative intensity (I_{rel}) versus 2θ (degrees). The y-axis ranges from 0 to 1000, and the x-axis ranges from 0 to 180. The plot shows a single sharp peak at approximately 20.00 degrees, labeled as Cu-Kα (1.541874 Å). The software interface includes a menu bar (File, Edit, View, Pattern, Peaks, Search, Entries, Quantify, Database, Tools, Options, Help) and a toolbar. On the right side, there is a 'Composition' panel with a periodic table where elements are grouped into patterns (P1-P7). Below the periodic table, there are controls for 'Element selection by mouse' (All, None, Any, Optional, Toggle, Reset) and 'Preset' (None / new set). At the bottom, there is a status bar with the following information: 2th: 124.89, d: 0.8696, I rel.: 101.74, 78155 entries, COD-Inorg 2022.06.29, Exp. date: 27.10.2022. The Windows taskbar is visible at the bottom of the screen.

A horizontal watercolor splash with a rainbow color gradient from purple on the left to yellow on the right. The text is centered over this splash.

LET'S TRY THIS
TOGETHER