

Kuliah Tamu Departemen Teknik Geofisika (29 Agustus 2022)

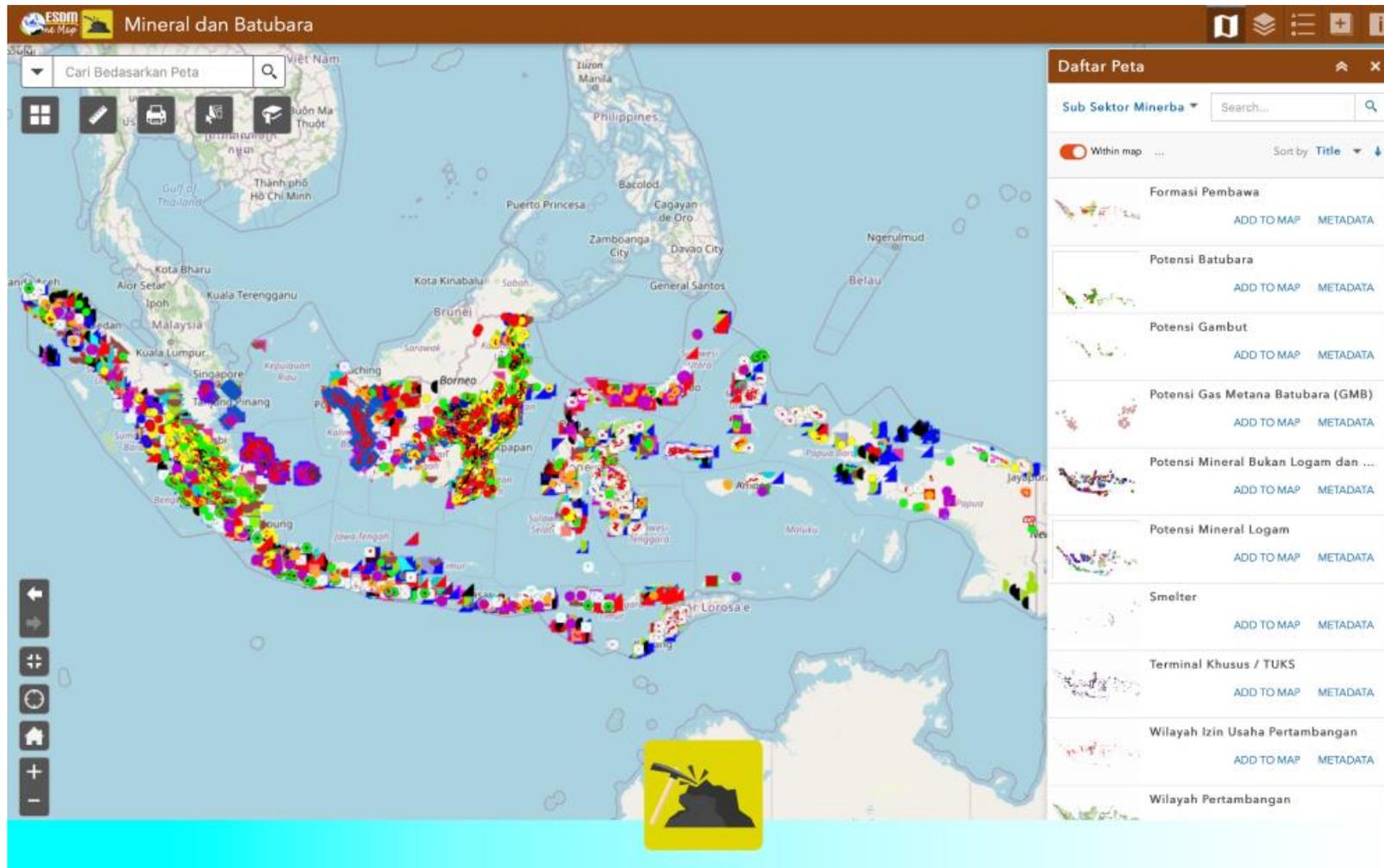
ANALISIS MINERAL DENGAN DATA XRD UNTUK ASESMEN KONDISI LINGKUNGAN

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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.

The image is a composite. The top portion is a periodic table titled "Rare Earth Elements" with the following structure:

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									

Below the main table, the Lanthanides are listed in an orange row: La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu. Below that, the Actinides are listed in a blue row: Ac, Th, Pa, U, Np, Pu, Am, Cm, Bk, Cf, Es, Fm, Md, No, Lr.

The bottom portion of the image is a photograph of several piles of rare earth metal powders on a dark surface. The piles are labeled with their respective element names in yellow text: Gadolinium (top left), Praseodymium (top center), Cerium (top right), Samarium (middle left), Neodymium (bottom center), and Lanthanum (middle right).

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) for Cu-Kα radiation (1.541874 Å). The plot area is currently empty, with a y-axis ranging from 0 to 1000 and an x-axis from 0 to 180. Below the plot, a message reads: "Please import diffraction data (e.g. press <Ctrl+I>), and/or select restraints on the upper right-hand side!".

On the right side, there is a "Composition" panel with a periodic table. The table is organized into groups labeled P1 through P7. Below the table, there are controls for "Element selection by mouse" (All, None, Any, Optional) and "Toggle" and "Reset" buttons. Further down, there are fields for "Name:", "Elem. count:", and "Formula sum:", along with "Save", "Delete", and "Reset" buttons. At the bottom of the interface, a status bar shows: "2th: 124.89 d: 0.8696 I rel.: 101.74 78155 entries COD-Inorg 2022.06.29 Exp. date: 27.10.2022".

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