A computer animation on Phanerozoic movements and paleogeography of the Australian Plate

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Questions

• How to relate past positions of continents to global and regional environmental changes?

• How to describe and to understand the wandering of continents during Phanerozoic?
Interpreting the path of Australian plate from Cambrian to Recent...

• Computer animation designed to overcome preconceptions and common-sense ideas on climate change
  – Focus on Phanerozoic geological drift of a selected plate

• Series of maps integrated in flash software and converted to animated graphics interchange format (GIF)
Movements of Australia

• Paleogeography and dynamics of a moving plate
  – Events of subsidence or uplift

• Paleoclimatic studies
  – At a given period there is a huge variety of climates for each single position
Changes of latitudinal position help to explain many geological points

- Paleoenvironmental evidence from:
  - Sandstones, shales, limestones and diamictites

- Paleogeography can be crossed with data on:
  - Biological distribution and diversity
  - Volcanism
  - Hot spots
  - Mountain ranges
  - Sedimentary basins
Legend for paleogeographic maps

Source:
445 Ma
420 Ma
365 Ma
270 Ma
220 Ma
200 Ma
1 Ma
The maps result from a collective, not isolated, effort

• Maps produced by a broad group of:
  – Geologists, geophysicists and other professionals
  – Associated to oil and mineral exploration companies and Australia governmental agencies
El movimiento del continente australiano

520 Ma
Control of present-day world climates

- Debate should focus on the interactions between spheres
- The animation helps developing and exploring concepts of climate change, as long as it requires:
  a) An understanding of paleo-environments
  b) Historical and epistemological aspects of modern studies on Planet Earth dynamics
Conclusions

• The maps are an example of the need of collaborative work by research groups, a definitive characteristic of modern Earth Sciences

• The “Australian dance” animation may bring students a motivating tool
References


Thank you for your attention!

THE END