INTRODUCTION TO THE GEOLOGY OF NEOGENE BASINS IN SE SPAIN

Juan C. Braga

Dept. Estratigrafía y Paleontología Universidad de Granada







Extremadura

Murcia • Murcia

arboneras

Sevilla

Andalucía (Andalusia)

Cádiz

Gibraltar

Estrecho de Gibraitar Tanger- (Tánger)

Tétouan (Tetuán)

1000

Málaga-

Mar de Alborán

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Chararinas Islands

(Orán) Oran

. SidilBe



Betic Cordillera: westernmost segment of Alpine chains



The Internal Zones (Alborán Domain) comprise a terrane emplaced against the South Iberian margin (External Zones)



Neogene basins in SE Spain: intermontane basins on Betic basement and Neogene volcanics







Betic block

Metamorphic basement Precambrian-Triassic rocks

Cabo de Gata block Volcanic basement Miocene rocks

Quarzites, micaschists, gneisses, marbles, gabbros, amphibolites

Dacites, andesites, rhiolites Ignimbrites, tuffas, lavas



The basins evolved as the Betic Cordillera uplifted and emerged They are marginal Mediterranean basins



The uplift of the cordillera is taking place by isostasy and compression



older Neogene deposits folded and faulted





Volcanics in Cabo de Gata are only 5% of volcanics in the Alborán basin







Several units separated by unconformities

Terrigenous deposits derived from erosion of emerging reliefs

+ carbonates and evaporites





Temperate and reef carbonates change laterally to

marls



Rapid lateral facies changes



Caritiz reef in Sorbas Basin













Stick-like *Porites*



coralline algae



microbialite



The Neogene basins in SE Spain developed on Betic metamorphic basement (Internal Zones) and Cabo de Gata volcanics

They were intermontane basins connected to the Mediterranean Sea.

They filled with sediments while the region uplifted

Several units separated by unconformities

Terrigenous deposits derived from erosion of emerging reliefs

+ carbonates and evaporites

The extension of marine basins decreased with time. The last marine basins were the closer to present-day coast line

Small dimensions and good exposures make them excellent examples for teaching and research