



## MAGM-SG: Sesión General Magmatismo y Metamorfismo

### Late Jurassic to Late Cretaceous continuous magmatism in Central Patagonia: Zircon SHRIMP U-Pb age data

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Fourteen new SHRIMP U-Pb from 6 different Early Cretaceous and Cenozoic lithostratigraphic units from the Aysén Region in Chilean Patagonia allowed the identification of:

1. A continuum of magmatism from 155 to 96 Ma and probably up to 65 Ma.
2. A previously unknown Valanginian-Barremian magmatism and a hypothetical westward migration of it.
3. The absence or diminished volcanic activity in the Paleocene.
4. Important Chattian and Burdigalian volcanism.
5. The abundance and continuous range of ages of detrital zircon grains of the Apeleg sandstones, between 155 and 124 Ma, indicates a continuum of magmatism from the Kimmeridgian to the early Aptian. The question is whether their provenance was from volcanic rocks that were always subaerially exposed and/or from volcanic rocks that were covered by lower Neocomian sedimentary rocks and/or from plutonic rocks. The latter cases would imply tectonic exhumation contemporaneous with magmatism.
6. An Aptian age of ca. 123 Ma is the youngest of the maximum ages obtained for the Apeleg Formation.
7. A Burdigalian (late early Miocene) maximum age of approximately 19 Ma for parts of the Guadal Fm.
8. A Burdigalian age of approximately 18 Ma was obtained from a tuff at the base of the Santa Cruz Formation.
9. All of the analyzed samples from the Upper Oligocene and Lower Miocene beds, with one exception, lack or have minor amounts of zircon grains with Paleozoic or Proterozoic ages. This is a notorious difference from the Lower Cretaceous sandstones that are characterized by a strong pre-Mesozoic signature. It can be interpreted as due to a generalized burial of metamorphic complexes by the Cretaceous sedimentary and volcanic beds. The exception corresponds to one of the analyzed samples of the Santa Cruz Formation that has only Paleozoic and Proterozoic zircon grains with the exception of just one Miocene grain. This can be related to localized tectonic uplift of the metamorphic rocks during the Miocene.
10. New field and radiometric work indicates a conformable contact between Apeleg and Divisadero units, changing previous reports, and supports a Turonian-Santonian, Eocene-Late Oligocene and Miocene compressive tectonism. Migration and widening of arc-trench elements and changes of subduction angles are inferred for the Late Mesozoic.