

# COLLABORATION IN SCIENCE AMONG FRANCE, MOROCCO AND SPAIN (1980-2006)

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## INTRODUCTION

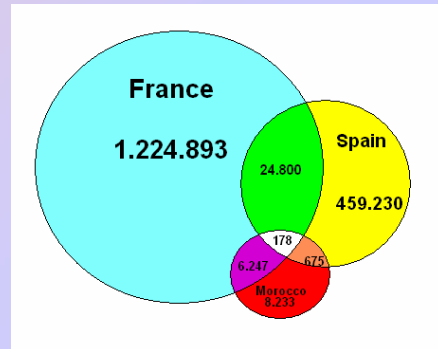
Scientific research has become a collaboration activity which scope goes beyond geographic and cultural frontiers. Scientific collaboration between authors and institutions is a differential characteristic of the work research. The increasing on the number of areas and complexity of the research makes necessary the cooperation between experts from different specialities in order to interchange knowledge as well as to share and profit high-cost equipment and infrastructure. International collaboration is interesting for scientific communities, especially for small ones, as it makes easier to increase capacities and their integration on international activities, promoting professional mobility, the visibility and the possibilities of their scientific work. This article presents the results of a study on the scientific collaboration through their international publications, between three countries: France, Morocco and Spain.

## METHODOLOGY

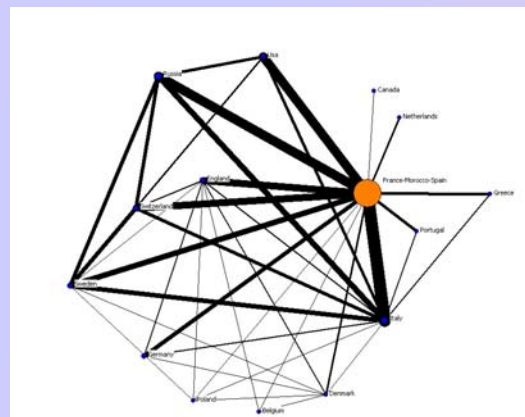
Data for this work were obtained from a search to three multidisciplinary databases: AHCI, SCI y SSCI (produced by the Institute for Scientific Information, ISI) through the platform "Web of Sciences". The basic strategy search has been "France and Morocco and Spain" on the *Address* field. The first article co-authored by these three countries, collected by the ISI database is published in 1980.

## RESULTS

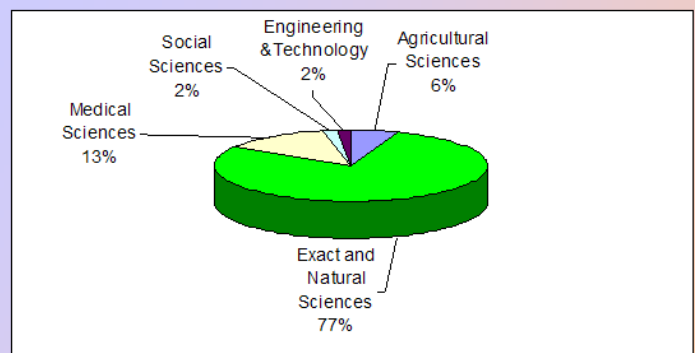
France, Morocco and Spain have collaborated on 178 articles from 1980 to 2006. Collaboration trend is positive and permanent through the 16 studied years. In 1980-1989, 8 articles were co-signed by the three countries. In 1990-1999 there were 54 papers, and 116 for the 2000-2006 period. The 178 articles appeared on 129 journals. The scarce presence on ISI databases of journals published in France, Morocco and Spain make the English language to be the most frequently used. A 51'69% of the articles have been published on English-written journals while a 44'94% have been published on multi-languages journals. Only the 1,69% of the articles have been published in French, a 1'12 % in Spanish and a 0'56% in Russian. The scientific areas with higher number of papers are the Exact and Natural Sciences, the Medical Sciences and the Agricultural. The average number of authors signing an article depends on the scientific area of the article.



Scientific production on the ISI databases of France, Morocco and Spain, during the period 1980-2006



Countries network collaboration on 6 or more articles with France, Morocco and Spain during the period 1980-2006



Distribution based on scientific areas of the articles signed by France, Morocco and Spain during the period 1980-2006.

## CONCLUSIONS

This paper shows clearly that the collaboration between France, Morocco and Spain is highly increasing, following the scientific world trends. The results of our work show a dynamic scientific collaboration between these countries, with the increasing incorporation of other countries. The main number of papers during the studied period has been published on journals that have been classified, belonging to the ISI, on the subjects of Astronomy & Astrophysics, Chemistry, Physical, Geosciences, Multidisciplinary and Instrument & Instrumentation.