



## **AUSTRAL SUMMER INSTITUTE XIII UNIVERSITY OF CONCEPCIÓN**

### ***Understanding physical, chemical and biological processes in the marine environment***

#### **Chemical and biological characteristics of the oceanic phosphorous cycle Ian Salter**

**Observatoire Océanologique de Banyuls-sur-Mer, France  
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#### **Description**

Phosphorous is an essential nutrient for productivity in marine environments. Despite its importance, many marine ecosystems are limited by the availability of Phosphorous. This course will explore all aspects of phosphorous cycling in marine ecosystems. It will begin with an overview of the global phosphorous distributions and discuss the areas that are limited by phosphorous. Subsequently the course will examine the analytical techniques available for the determination of inorganic and organic phosphorous components. Particular attention will be paid to the utilization of radioactive tracers for exploring the kinetics of phosphorous cycling. Novel advances which couple  $^{33}\text{P}$  tracer experiments with single cell and molecular tools will be discussed to examine the competition for phosphorous uptake between different groups of biological organisms. Finally, the course will explore recently developed techniques in genomics to advance our insight into the biological cycling of this crucial element.

#### **Contents**

General features of the marine phosphorous cycle: A global overview

Analytical techniques used for characterizing the marine phosphorous cycle

Use of radioactive tracers in studying the kinetics of the marine phosphorous cycle

Impact of biological processes on phosphorous cycling

Molecular insights into phosphorous cycling

Perspectives