

# Earth Scientist Series

## California State Personnel Board Specification

Series established xx/xx/xxxx

### Scope

This series specification describes four classes of professional Earth Scientists used to plan, organize, direct, and perform research, studies, and investigations, as well as regulatory and resource-management activities, all of which are related to earth science. "Earth science" is defined here as an all-embracing term for physical sciences related to the Earth; it includes such subjects as geology, geochemistry, geophysics, seismology, meteorology, hydrology, soil science, and oceanography. The purpose of this work is to contribute to the understanding and interpretation of Earth processes and materials that may adversely or unfavorably affect the health, safety, or economic well-being of the citizens of California as well as the environmental well-being of the State. In some cases, application of this work is in a regulatory context. Examples of these processes and materials include natural hazards, such as earthquakes, and natural resources, such as minerals and water.

### Earth Scientist Series Specification - Class Titles and Codes

<u>Schem Code</u>	<u>Class Code</u>	<u>Class</u>
<u>xxxx</u>	<u>xxxx</u>	<u>Earth Scientist</u>
<u>xxxx</u>	<u>xxxx</u>	<u>Senior Earth Scientist (Specialist)</u>
<u>xxxx</u>	<u>xxxx</u>	<u>Senior Earth Scientist (Supervisor)</u>
<u>xxxx</u>	<u>xxxx</u>	<u>Supervising Earth Scientist</u>

### Definition of Series

The Earth Scientist series is used statewide; most positions are with agencies that have responsibility for use and protection of natural resources and for public health and safety related to natural hazards and general earth processes. Classes in this series perform a range of applied research and investigations, as well as regulatory and resource-management activities, that focus on topics in geology, geochemistry, geophysics, seismology, meteorology, hydrology, soil science, and oceanography. Incumbents typically are trained in one or more of these disciplines, and, therefore, conduct studies and apply knowledge that involve those specific disciplines.

The work of Earth Scientists in State service typically involves issues related to mineral and energy resources; water supply and quality; natural hazards, such as earthquakes and floods; agriculture; pollution of earth materials, water, and the atmosphere; and ocean and atmospheric properties. Classes in this series plan and perform field and laboratory studies and investigations related to the specific earth-science disciplines listed above. Incumbents may also apply this knowledge in regulatory or resource management activities. These classes may also arrange for and monitor earth-science studies conducted by other governmental agencies, academia, or private industry. The results from these activities are typically distributed by Earth Scientists to the public via written reports, oral presentations, and digital communication products.

Earth Scientists collect new field and laboratory data and, in some cases, compile existing data to aid study and solution of simple to complex earth-science problems and questions; use sophisticated field and laboratory equipment to document and monitor earth materials, water, and atmospheric conditions as they relate to natural resources and natural hazards; and use computers extensively to record, process, and analyze data, to apply models, and to prepare reports, maps, and graphics for presentations or publication. Earth Scientists typically collaborate with other technical specialists in initiating and conducting studies and preparation of reports, and are often involved in extensive public and professional outreach. They may also participate in

regulatory activities or management of natural resources. Earth Scientists may also act as advisors to other State agencies, the Federal government, and local government, and may serve as reviewers of technical reports and manuscripts submitted for publication.

## Entry Level

Entry into this series may be at any level, dependent upon both the characteristics of the work performed and the academic education and professional experience of the candidate.

## Factors Affecting Position Allocation

Complexity and variety of assigned work; academic background; degree of independence of action; amount of supervision exercised or received; degree of originality and creativity required; degree of public and interagency contact; degree to which decisions are sought and accepted by upper management; degree of recognition in the scientific community; consequence of error; reporting relationships; and extent of effect or influence of work and decisions.

## Definition of Levels

### Earth Scientist

This class includes entry, intermediate, and journey levels in the series. Incumbents move through the ranges of the class as technical competence, performance, and ability to assume responsibility increase.

Range A is the entry and first working level in the class. Incumbents work under close supervision performing less difficult earth scientist work, gathering data; conducting simple studies and investigations; assist in preparing reports, maps and graphics to be used for publications or presentations; perform less difficult analysis, research or surveys; prepare drafts of routine correspondence.

Range B is the intermediate working level. Under general supervision, incumbents perform professional earth scientist analysis, research, surveys, investigations and studies of average difficulty. Incumbents write reports; assist in the preparation of oral presentations; answer questions of a routine nature from the public and other governmental entities and agencies.

Range C is the journey level in this class. Under direction, incumbents perform difficult professional earth scientist work. Incumbents may act as project managers on more complex projects or be assigned technical-specialist responsibilities in support of project managers or other technical or programmatic functions. This level may also be used in a technical lead capacity over the work of other technical or professional employees in one or more specific projects. Candidates in this class performing the duties of a geologist or performing work in the field of geology must possess a valid certificate of registration as a geologist or geophysicist issued by the California Board of Registration for Professional Engineers, Land Surveyors and Geologists before movement or appointment into this range.

### Senior Earth Scientist (Specialist)

As a non-supervisory staff specialist, the Senior Earth Scientist (Specialist) acts as a scientific advisor responsible for independently conducting and preparing internal reports or publications on extremely complex and difficult earth-science investigations and studies on issues of major importance to the employing agency and the State. Incumbents represent the organization in contacts with governmental agencies and private entities and may act in a technical lead capacity over the work of other technical or professional employees in one or more specific projects.

## Senior Earth Scientist (Supervisor)

The Senior Earth Scientist (Supervisor) is the first supervisory level in the series. The senior level is the first level to which administrative responsibility is assigned. Incumbents supervise and direct the work of professional or technical staff, may manage a regulatory or resource-management program, and do other related work. Incumbents performing in this capacity have the authority and responsibility in the interest of management to recruit, hire, transfer, suspend, lay off, recall, promote, discharge, assign, reward, or discipline employees. Incumbents have the responsibility to plan, organize and direct employees, adjust employee grievances, or effectively recommend such actions.

## Supervising Earth Scientist

The Supervising Earth Scientist is the second supervisory level in the series. Incumbents plan, organize, and direct earth-science work; may manage one or more regulatory or resource-management programs; and direct the utilization of personnel, instruction of supervisory technical personnel, and the coordination of their activity with other organizational components.

## Minimum Qualifications

### All Levels:

Education: Possession of a bachelor's of science or advanced degree from an accredited college with a major in geology, geological sciences, geochemistry, geophysics, seismology, earthquake engineering, engineering geology, geological engineering, mining engineering, petroleum geology, earth science, meteorology, atmospheric science, hydrology, soil science, or oceanography. (Admission to a master's or doctoral degree program in any of the above disciplines shall be considered to meet these education qualifications.) A degree in physical sciences with an emphasis in any earth science will qualify to meet the minimum educational requirements. A degree in physics or chemistry will qualify if the applicant has successfully completed a minor in any earth-science discipline.

## Earth Scientist

Education as indicated above. (Registration as a senior in an accredited institution will admit applicants to the Earth Scientist examination, but they must produce evidence of a bachelor's degree before they can be considered eligible for appointment.) AND

One year of professional earth science experience outside of California state service.

## Earth Scientist, Range C, and Above

Candidates performing the duties of a geologist or performing work in the field of geology must possess a valid certificate of registration as a geologist or geophysicist issued by the California Board of Registration for Professional Engineers, Land Surveyors and Geologists.

## Senior Earth Scientist (Specialist)

## Senior Earth Scientist (Supervisor)

### EITHER I

Experience: Two years of experience performing the duties of an Earth Scientist, Range C in California state service.

### OR II

Experience: Four years of professional earth-science experience involving the performance of increasingly responsible duties, at least two years of which shall have been comparable in level and responsibility to an Earth Scientist, Range C, in California state service. (A master's degree with major work in the relevant earth-science discipline may be substituted for one year of the required experience. A doctoral degree with major work in the relevant earth-science discipline may be substituted for two years of the required experience.)

## Supervising Earth Scientist

### EITHER I

Experience: One year experience performing the duties of a Senior Earth Scientist (Specialist) or Senior Earth Scientist (Supervisor) in California state service.

### OR II

Experience: Five years of professional earth-science experience, at least two years of which shall have been comparable in level and responsibility to that of a Senior Earth Scientist (Specialist) or Senior Earth Scientist (Supervisor) in California State service. (A master's degree with major work in an earth-science discipline may be substituted for one year of the required experience. A doctoral degree with major work in an earth-science discipline may be substituted for two years of the required experience).

## Knowledge and Abilities

### Earth Scientist

Knowledge of: Basic principles of the scientific method including observations, collection of data, development of hypotheses, testing and experimentation, and development of conclusions; components of physics, chemistry, and mathematics as they apply to the earth sciences; general characteristics of natural hazards and earth and water resources; basic computer skills; interrelationships between the solid Earth and its atmosphere and hydrosphere; fundamental field and laboratory tools and equipment used in specific earth-science disciplines; procedures and rules of writing well-organized, accurate, clear, and effective technical reports; and safety while conducting field and laboratory investigations.

Ability to: Conduct scientific field and laboratory investigations that include collection of data, analysis and evaluation of those data, and development of sound conclusions regarding those data; review, check, and interpret scientific reports; analyze situations and take appropriate actions; establish and maintain cooperative relations and effective communications with local, State, and Federal agencies and all persons contacted; communicate clearly to the public; apply rules, regulations, policies, and requirements of State and Federal programs and statutes; and prepare clear, complete, and technically accurate reports.

### Senior Earth Scientist (Specialist)

Knowledge of: All of the above plus principles of effective leadership and communication.

Ability to: In addition to the above, develop effective working relationships with other governmental agencies, private industry, academia, and the public; communicate effectively with these groups; develop innovative approaches and solutions to difficult and complex earth-science issues and problems.

### Senior Earth Scientist (Supervisor)

Knowledge of: All of the above, and the principles of effective supervision, personnel management, and budget preparation; the department's Equal Employment Opportunity Program objectives; a supervisor's responsibility for promoting equal opportunity in hiring and employment development and promotion, and for maintaining a work environment free of discrimination and harassment; methods and techniques of effective leadership; and general administrative processes.

Ability to: All of the above, and prepare plans, specifications, and estimates for earth-science investigations; maintain cooperative relationships with those organizations contacted during projects; delegate work to others, direct the work of others, and motivate others to work effectively; and effectively contribute to the department's Equal Employment Opportunity Program objectives.

## Supervising Earth Scientist

Knowledge of: All of the above, and the principles of fiscal oversight for multiple units, budgeting, labor relations objectives, and other administrative functions; organization and goals and objectives of the organization; principles and practices of policy formulation and development; techniques of motivating and organizing groups; and current methods used to evaluate program effectiveness.

Ability to: All of the above, and direct and organize the work of major programs; perceive alternatives available in the solution of management problems and select effective and realistic courses of action; direct and coordinate the work of others through subordinate supervisors; gain the confidence and support of top level management and develop cooperative working relationships with all levels of government and the public; and effectively contribute to the Department's labor relations objectives.

## Additional Desirable Qualifications

### All Levels:

In appraising the relative qualifications of candidates during hiring, consideration will be given to the extent and type of pertinent education, training, experience, and research accomplishments over and above that required under "Minimum Qualifications."

## Class History

Earth Scientist Series History - Dates Established, Revised, and Title Changed

<u>Class</u>	<u>Date Established</u>	<u>Date Revised</u>	<u>Title Changed</u>
<u>Earth Scientist</u>	<u>xx/xx/xxxx</u>	--	--
<u>Senior Earth Scientist (Specialist)</u>	<u>xx/xx/xxxx</u>	--	--
<u>Senior Earth Scientist (Supervisor)</u>	<u>xx/xx/xxxx</u>	--	--
<u>Supervising Earth Scientist</u>	<u>xx/xx/xxxx</u>		