

# BUILDING A BRIDGE TO BUSINESS



*"A decisive majority of senior finance and risk managers confirm that their businesses are significantly impacted by the weather."*

— RANDY MYERS,  
BUSINESS JOURNALIST

## FINANCIAL RISKS, SCIENCE SOLUTIONS

THE BUSINESS SECTOR IS SUBJECT TO RISK FROM MANY ANGLES AND TODAY'S BUSINESS ANALYSTS ARE INCREASINGLY CHALLENGED TO FOCUS ON THE SEVERE RISKS POSED BY EARTH ITSELF. CATASTROPHIC EARTHQUAKES AND HURRICANES ARE LINKED TO INSURANCE LOSSES AND DISRUPTIONS IN RETAIL SUPPLY CHAINS. PERIODS OF HOT OR COLD WEATHER LEAD TO DRAMATIC SWINGS IN ENERGY PRICES AND AFFECT CONSUMER BEHAVIOR. FLOODS AND DROUGHT LEAD TO SWINGS IN FOOD AND BEVERAGE PRICES THAT LINK ALL THE WAY TO SUPERMARKET SHELVES. CLIMATE CHANGE INITIATIVES ARE FORMING THE BASIS FOR A NEW ECONOMY AND SHIFTING WEATHER PATTERNS DRIVEN BY THE CHANGING CLIMATE ARE AFFECTING THE VERY DATASETS THAT UNDERPIN THE LINKAGES BETWEEN WEATHER AND BUSINESS. CERTAIN FINANCIAL RISKS CALL FOR SCIENCE SOLUTIONS AND SCRIPPS INSTITUTION OF OCEANOGRAPHY AT UC SAN DIEGO IS LEADING THE WAY BRIDGING SCIENCE AND BUSINESS...



SCRIPPS INSTITUTION OF  
OCEANOGRAPHY  
*UC San Diego*





## THE SCRIPPS OCEANOGRAPHY ADVANTAGE

Scripps is a world-renowned leader in the study of Earth systems. Scripps science ranges from seminal work in global climate change to understanding El Niño and its impact on North American weather extremes. Scripps is also at the forefront of new discoveries in biofuels and pharmaceuticals from the sea and conducts research ranging from mapping the seafloor for oil exploration to gaining a better understanding of catastrophic earthquakes.

## BUSINESS DEVELOPMENT AT SCRIPPS

*“There’s a growing need for scientists who are as comfortable in the boardroom as they are in the laboratory.”* —INSIDE HIGHER ED

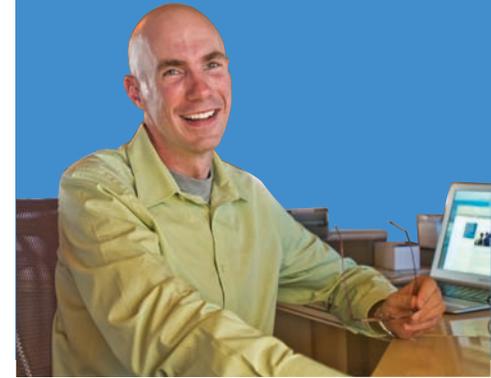
Scripps Director of Business Development Stephen Bennett joined Scripps directly from a large multi-strategy hedge fund where he worked with teams of investors focused on the insurance and commodities sectors.

Stephen’s first language is science—having spent 12 years of his career coupling atmospheric science and meteorology with media and financial applications. His second language is business—having served as a manager and director in two multi-billion-dollar financial firms after his early career working as a weather consultant.

In addition to his educational foundation in meteorology, Stephen also holds a law degree with a specialized knowledge in leadership, management, intellectual property, securities, and corporate law.

*“My goal is to enlist partners from within the private sector to help us bridge scientific research and business application.”*

—STEPHEN BENNETT  
SCRIPPS DIRECTOR OF BUSINESS DEVELOPMENT

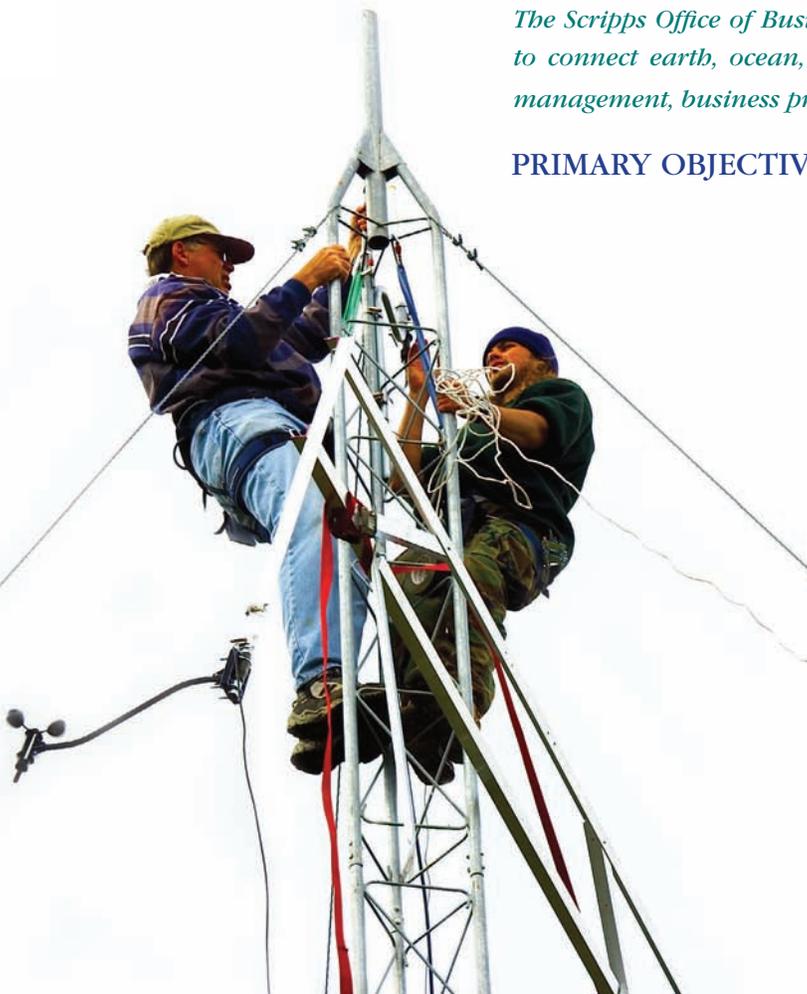


## SCRIPPS BUSINESS DEVELOPMENT INITIATIVES

*The Scripps Office of Business Development uses an entrepreneurial approach to connect earth, ocean, atmospheric, and climate science to corporate risk management, business product development, and investment portfolios.*

### PRIMARY OBJECTIVES OF SCRIPPS BUSINESS DEVELOPMENT:

- Executive education, focused on the link from earth sciences to business, including weather, climate, natural hazards, and biological applications
- Research collaborations, including the Scripps Partnership for Hazards and Environmental Applied Research (SPHEAR)
- Scripps innovation, invention, and new venture creation





## EXECUTIVE EDUCATION

Climate change has become a central variable for many of today's businesses. Executives, entrepreneurs, and investors are reviewing risk and reward metrics in a whole new market driven by the changing climate.

This new market includes evolving technologies, alternative energy solutions, sustainability initiatives, corporate branding opportunities, and marketing strategies as well as innovative new investment portfolios. A new breed of executives is rising to the task of "greening" the corporate environment.

To address this market, Scripps Institution of Oceanography has teamed up with the Rady School of Management at UC San Diego to present a professional development series on climate change and business. These programs draw executives from corporations all over the country, including IBM, Qualcomm, Nike, and dozens of others. Instruction comes from corporate leaders as well as a selection of the world's leading climate scientists.

*"Healing the planet while healing our pocket books—it's the idea behind a new program at UCSD. Professors are teaching business leaders how to link an environmentally friendly attitude with a keen eye for profit. The course is changing the way movers and shakers are directing their cash flow."*

**—From a recent report by KFMB-TV News 8 on the Scripps initiative to teach climate change in a business context.**

## INNOVATION AND NEW VENTURE CREATION

Scripps scientists are also inventors and the Scripps history is rich with innovative intellectual property. Scripps inventions include instrument platforms capable of testing industry compliance with CO<sub>2</sub> regulation, remotely-operated underwater gliders, and autonomous drifters that span the globe measuring Earth's vital signs.

Forward thinking companies are collaborating with Scripps in technical innovation and Scripps stands ready to couple scientific invention with market application.

Investors and entrepreneurs also participate in the business development effort at Scripps. Scripps works closely with UC San Diego's office for Technology Transfer and the Von Liebig Center for Entrepreneurism and Technology Advancement in order to advance tomorrow's solutions into today's market.



## RESEARCH PARTNERSHIPS

Scripps corporate partnerships offer member companies opportunities to work directly with today's leading scientific minds. Corporate partners expect a return-on-investment and academic partners expect to break new scientific ground. Both work closely together to set a research direction; then in return for their capital contributions, corporate partners interact directly with teams of earth, ocean, and atmospheric scientists throughout the entire scientific process. Corporate partners seek to enhance their risk management practices, investing strategies, product lines, product pipelines, and corporate governance practices by applying Scripps research findings.

One such program, Scripps Partnership for Hazards and Environmental Applied Research (SPHEAR), seeks cutting-edge research in weather phenomena, natural hazards, climate change, and ocean biology. SPHEAR launched a pilot project that will deliver insights on weather extremes as applied to energy trading. Scripps is proud to be working with Chesapeake Energy, Susquehanna International Group, and Citadel Investment Group on this novel project that focuses on cold weather outbreaks and their impact on energy usage.

The project uses statistical and empirical frameworks to improve the lead-time and skill of extended range weather forecasts by tapping into relevant precursor weather information and conditioning the weather forecast on current, large-scale climate information.

**Scripps scientists work with researchers from within the University of California system and across the globe on projects of interest to collaborating businesses. This includes research in:**

### ATMOSPHERIC SCIENCES

Including temperature and precipitation extremes, seasonal weather patterns, and hurricanes

### CLIMATE CHANGE

As it relates to the entire Earth system, including ocean biology that could lead to alternative fuels

### GEOPHYSICS

As it relates to catastrophic earthquakes, natural hazards, and petroleum exploration

### OCEANOGRAPHY

As it relates to global weather patterns, climate change, and biological applications for energy and pharmaceuticals



*"The average annual financial loss associated with U.S. earthquakes is \$10 billion for buildings, transportation networks, other lifeline systems, and business disruption. A single large earthquake could cause losses in excess of \$100 billion to the built and human environment, more than twice the loss from the 1994 Northridge earthquake, the most costly U.S. earthquake to date."*

— "SECURING SOCIETY AGAINST CATASTROPHIC EARTHQUAKE LOSSES," BY THE EARTHQUAKE ENGINEERING RESEARCH INSTITUTE

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