



## **Current Journal Contents** **October 2015**

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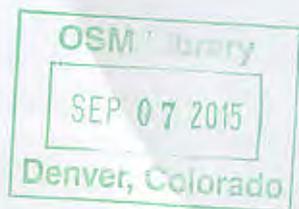


# THIS ISSUE

In addition to extensive coverage of the recently announced Clean Power Plan, this month Coal Age offers several articles aimed at helping coal operators improve performance and lower operating costs. On the cover, one of two new AC drive haul trucks Hitachi unveiled this month (See Product News, p. 50).

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Many students with sensory, physical or cognitive disabilities are potentially discouraged from pursuing geoscience degrees when faced with physically rigorous field-based learning environments. But serious efforts are underway to make sure that the full breadth of a geoscience education is available to all, and with a little planning, field geology can be accessible to everyone. | [Christopher L. Atchison](#) and [Brett H. Gilley](#)

### 50 | TRAVELS IN GEOLOGY: Australia's Whitsunday Islands: Sun, Sand and Silicic Volcanism

Swimming and snorkeling near the Great Barrier Reef, hiking and ziplining through rainforests and waterfalls, and relaxing on a beach composed of 99 percent pure quartz sand can all be done in a couple days' trip to the Whitsunday Islands and Queensland, Australia. | [Terri Cook](#) and [Lon Abbott](#)



### 62 | TOXIC GARDENS: The Long Legacy of Urban Lead

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### 70 | VITAL SECONDS: The Journey Toward Earthquake Early Warning for All

People living along the U.S. West Coast are keenly aware that they live near faults that could quake at any moment. The good news is that earthquake early warning — providing warnings seconds to minutes before damaging seismic waves hit — is progressing from being just a good idea to reality. | [Jennifer Strauss](#)

### 78 | TRAVELS IN GEOLOGY: Rafting the Pacific Northwest's Heavenly Hells Canyon

Few roads and only steep, difficult trails run down into Hells Canyon — the deepest canyon in North America — which forms part of the border between Oregon and Idaho. But the location is popular among boaters, whitewater rafters and fishermen, and a trip down the river reveals some spectacular rocks. | [Mary Caperton Morton](#)

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New missions are searching for potentially life-bearing exoplanets around small, cool, red dwarf stars. On many of these exoplanets, the habitable zone lies on the line between sunlight and shadow, which, ironically, is called "the terminator." Would life be able to exist in the terminator zones? | [Jacob Haqq-Misra](#)
- 11 **WHY I AM A GEOSCIENTIST**  
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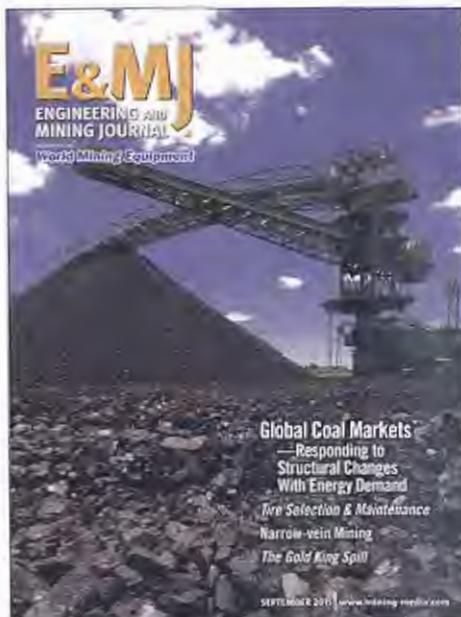
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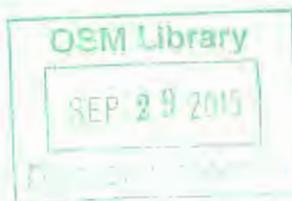
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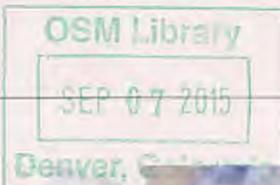
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## INFRASTRUCTURE

**28** Public-works professionals are partnering in new ways to get key projects done, such as the \$360-million CityArchRiver that will reshape the national park and reconnect the iconic St. Louis arch with downtown.

Cover photo by CityArchRiver; photo right courtesy of Greg Horn



**ARCH** CityArchRiver's Ryan McClure hosted Dan McNichol (left) and ENR Senior Editor Aileen Cho on the St. Louis stop of their American infrastructure road trip.

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## COVER STORY

## Global Best Projects Awards

**37** In this year's competition, judges looked at projects from all over the world—with a special focus on diverse teams and innovation—and chose 20 winners in 14 categories, including the Project of the Year.

Cover photo by Joel Morales Photography; photo right courtesy of Parsons



Crashes bedevil one Tennessee highway. Page 10

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## COVER STORY

## Roads With Brains

**16** Thanks to sensors and big data, intelligent transportation infrastructure is on its way to help improve roadway design, construction, monitoring and maintenance.

Cover image courtesy Figg Engineering;  
photo right courtesy Contra Costa  
Transportation Authority



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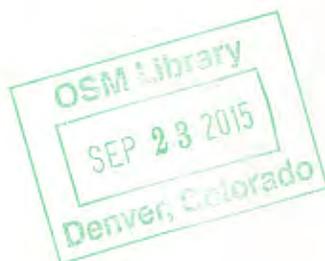
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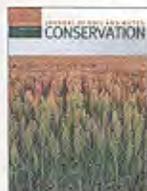
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Field of sorghum, named also  
durra, jowari, or milo.  
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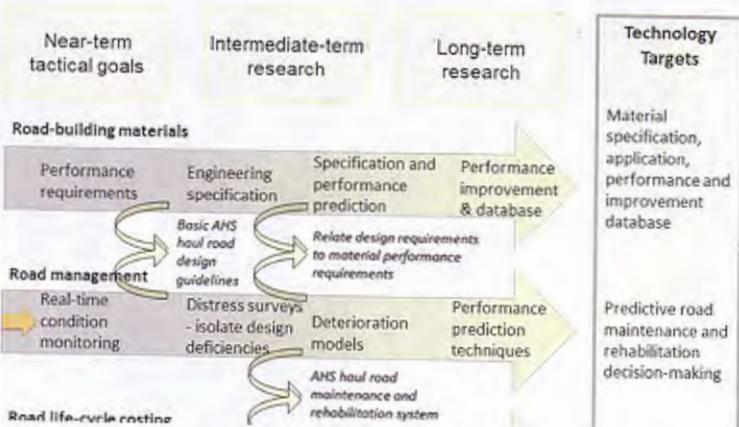
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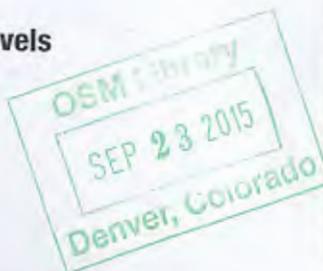
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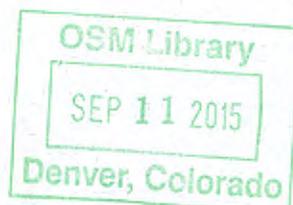
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