NATIONAL SCIENCE EDUCATION STANDARDS

A. Science as Inquiry

Understanding about scientific inquiry

D. Earth and Space Science

K–4

Changes in earth and sky

- Weather changes from day to day and over the seasons. Weather can be described by measurable quantities, such as temperature, wind direction and speed, and precipitation.
- Objects in the sky have patterns of movement.

5–8

Structure of the earth system

- Clouds, formed by the condensation of water vapor, affect weather and climate.
- Global patterns of atmospheric movement influence local weather. Oceans have a major effect on climate because water in the oceans holds a large amount of heat.

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Publishing services by South Pacific Press
Designed by ThinkSpace Design
Art Director: Moonhee Pak
Editorial Director: Stacey Faulkner

Published in the United States of America by

Creative Teaching Press Inc.
P.O. Box 2723
Huntington Beach, CA 92647-0723
www.creativeteaching.com

ISBN 978-1-59198-711-6

CTP 5740

Printed in the United States of America.

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EXTREME WEATHER

Every year, the United States has about 10,000 thunderstorms, 5,000 floods, 1,000 tornadoes, and 6 hurricanes. That's a lot of extreme weather for one country in one year!

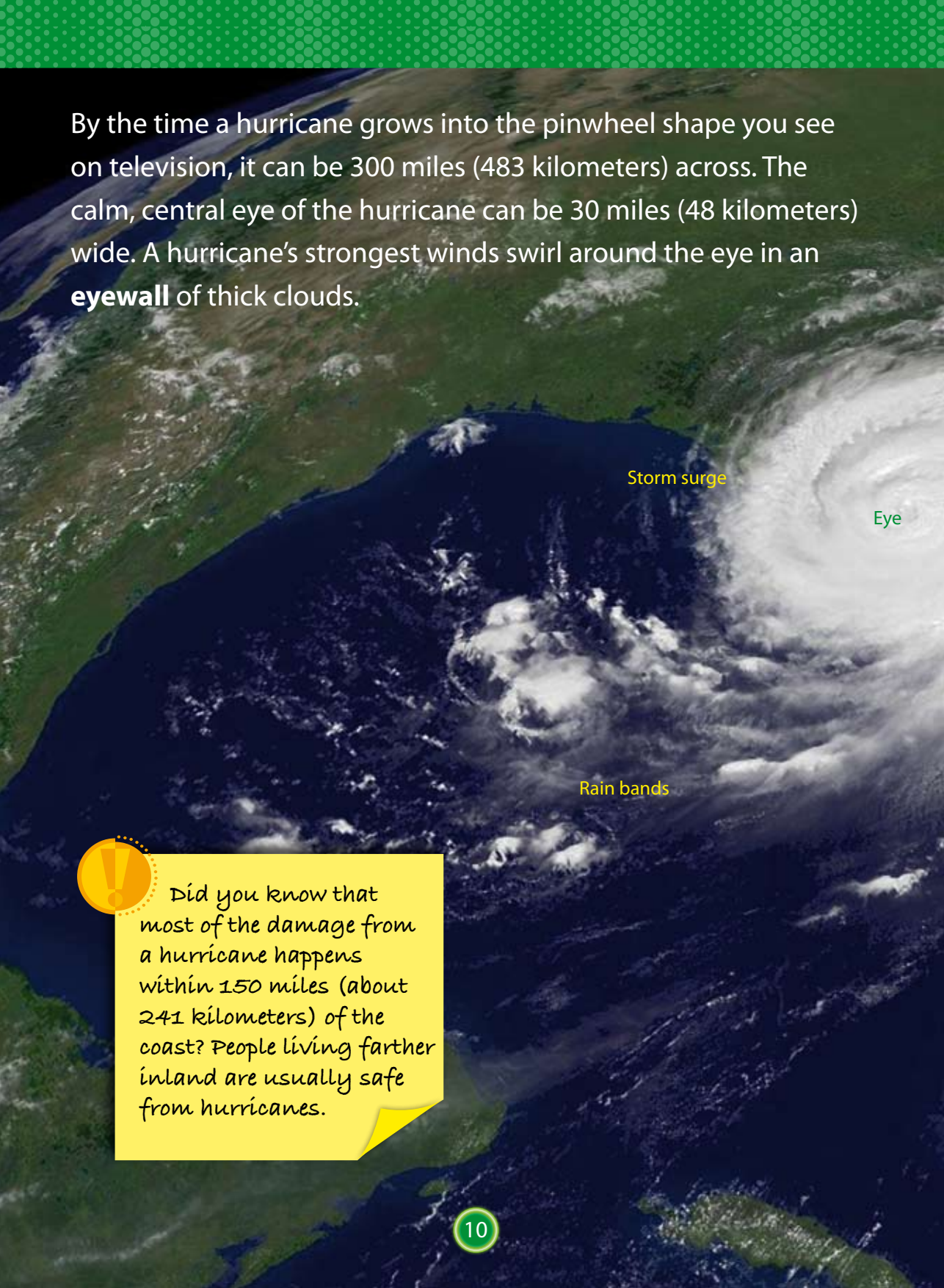
Have you ever wondered how the weather can go from calm and sunny one day to an extreme storm the next? If you have, you're in good company. Scientists all over the world are chasing extreme storms in order to learn more about them.

One of the wettest days on record occurred in July 1979 in Alvin, Texas, when 43 inches (109.2 centimeters) of rain fell in 24 hours.

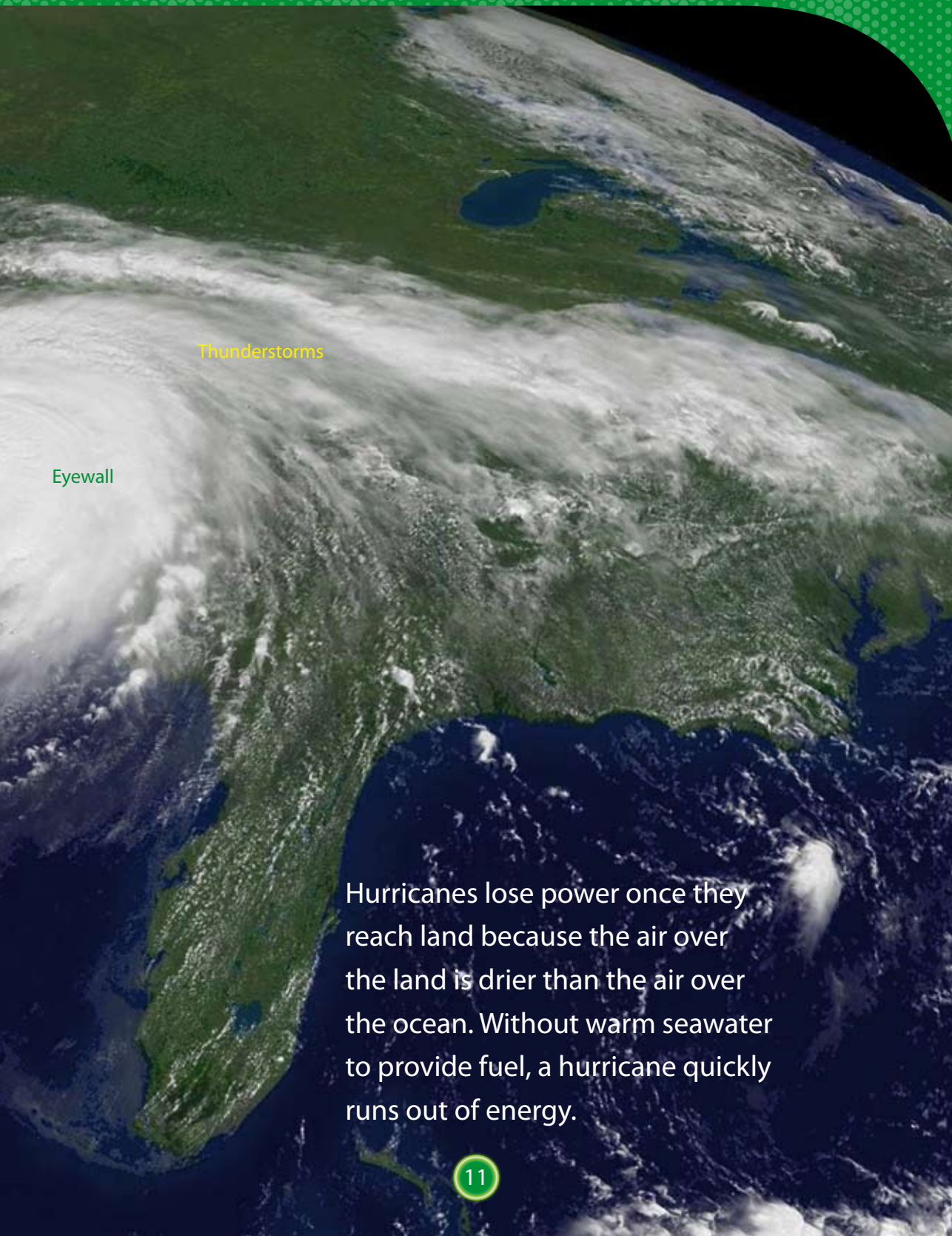
Hurricanes and tornadoes are both examples of extreme storms. While hurricanes and tornadoes have some similarities, there are big differences.

	Tornado	Hurricane
Size	up to 300 yards (about 274 meters) across	300 miles (about 483 kilometers) or more wide
Most common location	over land	over sea or coast
Speed of travel	25–40 miles (about 40–64 kilometers) per hour	10–20 miles (about 16–32 kilometers) per hour
Duration	a few minutes	several days
Wind speed	300 miles (about 483 kilometers) per hour	75–200 miles (about 121–322 kilometers) per hour
Most damage from	wind	**storm surge**, flooding, wind

By the time a hurricane grows into the pinwheel shape you see on television, it can be 300 miles (483 kilometers) across. The calm, central eye of the hurricane can be 30 miles (48 kilometers) wide. A hurricane's strongest winds swirl around the eye in an **eyewall** of thick clouds.



Did you know that most of the damage from a hurricane happens within 150 miles (about 241 kilometers) of the coast? People living farther inland are usually safe from hurricanes.



Hurricanes lose power once they reach land because the air over the land is drier than the air over the ocean. Without warm seawater to provide fuel, a hurricane quickly runs out of energy.