



Inside THE RAIL

From NASA's Confidential Close Call Reporting System



ISSUE 10

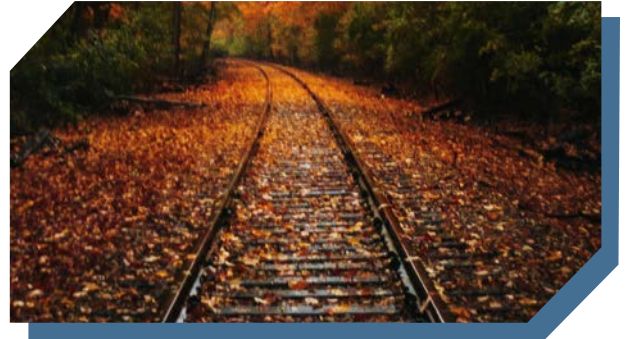
OCTOBER 2020

WHEN SEASONS CHANGE

Railroad operations do not stop because of bad weather. Controlling rail equipment in adverse weather can be a challenge. No matter the type of braking effort applied to rail equipment, reduced wheel/rail adhesion due to weather can cause wheels to slip on top of the rail. Under the same poor rail conditions, applying tractive effort to initiate movement or accelerate can also cause the wheels to slip against the rail. The term *slip slide* describes these conditions.

During the year, seasonal changes to the weather can lead to variations of why *slip slide* occurs. From heavy rain in the springtime, fallen leaves covering the rail in the fall, to ice and snow in the winter.

All of these conditions may reduce adhesion between the wheels and the rail. While weather watches and warnings may be issued to alert crews of changing conditions that could affect safe operations of rail equipment, *slip slide* and the issues related to it should always be anticipated. C³RS has received reports on inaccurate speedometers, missed station stops, doors off platform, running over derails, and stop indication overruns; many of which were determined to be related to *slip slide*.



There's a First for Everything

An Engineer's first experience with *slip slide* conditions resulted in the train sliding past a station platform and creating flat spots on the wheels.

■ *I was arriving at the Station, preparing to make my normal stop, and I put the master controller into minimum brake. I then felt a lot of slipping underneath the carriage on the rails and waited a few moments to see if traction would catch, but it didn't. I then attempted to apply a little more brake to try and regain control of the equipment, but then the train slid vehemently through the station and would not stop. I placed the master controller into emergency and then back to maximum brake to try and stop the train, so that way some of the train would still be on the platform and we could accommodate the passengers.*

C³RS Expert Analyst's Callback Summary:

The reporter, an Engineer, stated the train was operating in adverse weather conditions but despite the rain, they were not operating under slip slide advisories...Approaching the Station, braking was applied, triggering the slip slide indicator, which increased the speedometer reading. Realizing the slip slide condition, max braking and emergency were utilized, but the lack of traction resulted in the train sliding through a road crossing and stopped six cars beyond the spot at the passenger station...The Engineer had never experienced slip slide before but had received training, remained focused, did not panic and knew how to handle the situation. Despite the train handling, the slip slide caused flat spots on the wheels where none were present prior.

Ice Block

As colder seasons approach, lessons learned from prior C³RS reporters can help crews prepare for upcoming weather. This Engineer ran an absolute block due to *slip slide* during winter conditions.

■ *...We make a meet with another Train at [this] Station during the weekdays. On this day, we had no passengers to drop off, meaning no stops, just the meet. There was an absolute signal on the main track. I stop short of that signal every day. The other train passes by, we get a Clear signal and proceed. Today, I set the brakes just as I hit the road crossing. The train slid, I released the brakes, and set them again. Nothing. Then I threw the train into emergency and we slid by the signal and switch. We informed the Dispatcher, then backed the train up to clear.*

C³RS Expert Analyst's Callback Summary:

The reporter, an experienced Engineer added...the weather was very cold and snowy, causing the rails to become extremely icy. The territory they were operating on was Automatic Block Signal territory where the Dispatchers have no control of the signals. Their train, which was powered by an overhead catenary, was going less than 30 MPH approaching a station, which has a flag stop. The reporter had the air set in preparation for stopping at the station. The Engineer added more air and when the brakes did not respond, the reporter placed the train into emergency 15 car lengths from the signal, which is just past the station... Their train slid two cars past the signal and spring switch.

Speed Skating

An Engineer reported *slip slide* conditions that affected the train's speedometer.

■ *While running the Train, it began to rain and there may have been slip slide. I noticed the speedometer was at X MPH [7 MPH overspeed], Maximum Authorized Speed (MAS) was Y MPH, but the train didn't seem to be going that fast. Slip slide can cause the speedometer to jump around and give a false reading. I put the brake on, and the train immediately went to Z MPH (below MAS).*

When it Rains, it Pours

A Machine Operator was unable to stop a ballast tamper before running over a derail due to *slip slide* conditions.

■ *Moving toward the derail, we have to stop before we go out. I tried to stop the machine close to the derail, so I would be ready for the next move. As I got close, I tried to stop and because of the rain, I slid. I was going less than a few miles an hour and slid right on the derail and got derailed.*

C³RS Expert Analyst's Callback Summary:

The reporter, a Machine Operator explained that after a Job Safety Briefing...was to take the tamper down a yard track to the derail...The reporter was supposed to stop 1,000 feet short of the derail but was unable to stop the machine due to sliding on the wet rail. The machine was in idle, low gear and using surface brakes attempting to stop. The movement was going forward about 2 MPH when it slipped over the derail, derailing the rear two wheels.

When the Leaves Fall

A crew experienced *slip slide* while slowing for Working Limits.

■ *The crew missed the Approach sign and realized the Working Limits were coming up. Due to fallen leaves causing slip slide, the train slid while in emergency just past the Working Limits Stop sign, and before gaining full permission from the mobile unit. Once safely stopped, we were given full permission to proceed from where we stood.*

The Perfect Storm

During last year's winter season, a train crew slid past a road crossing needing protection.

■ *Crew was asked to protect a Crossing Warning Notification... by the Dispatcher. The Engineer slid past the Crossing Warning location due to conditions being poor causing slip slide*

conditions during braking and power. At the time, there was poor to no visibility, rain, sleet, snow, ice, wind and fog. There were no weather-related operating restrictions given to the crew from the Carrier. As the Trainman, I was located in the cab for the Crossing Warning procedures. I witnessed the train not stopping due to the rail conditions. The Engineer tried to contact the Dispatcher via radio three times, unsuccessfully; finally answered by the Dispatcher, at which time the event was over. The Engineer advised the Dispatcher of the situation. I feel weather related speeds should have been in effect throughout the day due to the storm situation.

On the Safe Side

Slip slide contributed to a passenger train stopping with doors off the station platform.

■ *Arriving at Station X, the train experienced slip slide which was indicated on the display screen and was felt by myself and my crew. As I approached the end of the platform and the crossing on the end of the station, I put the train into emergency and back into maximum brake to enable the slip slide feature and to avoid striking anyone who may walk around the crossing gates to cross the street. The train stopped with the first door off the platform. I held the door override and communicated with my Conductor as to the situation. My Conductor ensured the first west door remained closed and accommodated the few customers in the first car to walk back to the next available door. I reported the event to the Dispatcher while on scene, and later called in the event to Mechanical. After departing, I had additional slip slide arriving at Station Y and Station Z, but no platforming issues there.*

Did You Know?

If you submit a C³RS report, a NASA C³RS Expert Analyst may call you if you do not include enough information or to better understand the safety issues you are sharing. It is very important that you return our call within 3 days so that your identification (ID) strip (sent by the U.S. Mail) can be returned to you quickly.

The more information you include in your report, the faster the ID strip can be returned to you!

Report Intake By Craft January through September 2020	
Transportation	1,826
Mechanical	75
Engineering	59

C³RS
Inside The Rail

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<https://c3rs.arc.nasa.gov>

Monthly Report Intake Previous 3 Months	
July	251
August	248
September	192