Ceramic pots left out in the winter weather are frequently damaged due to one of the most fundamental of all physical laws of earth science: water expands when it freezes. This expanding water can be in the damp soil left inside of the pot, or it can be moisture that has soaked into the ceramic itself. Unglazed terracotta pots are the most vulnerable, but any pot made of ceramic should be protected during the coldest months.

The force of water expanding as it freezes is one of the principle geologic forces shaping the earth's surface. Water freezing in cracks will, over time, force slabs of rock to spall from granite mountain sides. Residents of regions much colder than Atlanta may see these forces in action, lifting and cracking sidewalks, or disintegrating the surface finish of a concrete slab over several winters.

Even though Atlanta's winters are not considered severe, we still get quite a few days in which the temperature falls to 32 degrees or below. According to The Southeast Regional Climate Center, data taken over the past 45 years show Atlanta has averaged 48 days each winter with temperatures at or below freezing. These freezing days fall between the months of November and March. Of course, many of these freezing spells last only a few hours and are followed by daytime temperatures that are significantly warmer. But water does freeze at 32 degrees Fahrenheit, and if temperatures remain at or below freezing for a sufficient length of time we might wake to find a block of ice floating in the bird bath and our favorite patio pots cracked or broken.

Damp soil will expand when it freezes. Pots broken by the freezing of damp soil can be identified by hairline cracks that start at the rim and cut almost vertically through the pot. These cracks can be significant enough to actually split the pot in half. This kind of damage can happen in any rigid container, but glass and ceramic (glazed or unglazed) are the most susceptible.

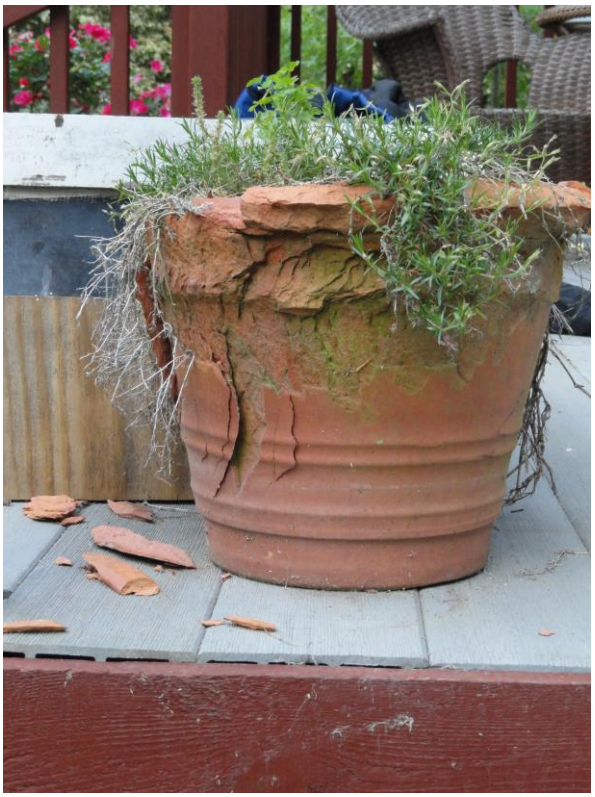
Unglazed terracotta pots can suffer an additional type of frost damage because they absorb water. This feature of absorbing water is what makes those old fashioned red clay pots a good choice for many of our favorite plants, especially cacti and other things that don't like to be soggy wet. Water seeps into the open pores of the ceramic and evaporates over time. This is air conditioning for the plant in the heat of the summer, but in the freezing winter it spells disaster for your lovely pot. Water in the microscopic pores of the clay expands as it freezes, resulting in slabs of pottery flaking away from the outer sides of the pot. This phenomenon is called *spalling*.

Since many of our outdoor potted plants have already died back by now, most of us have given up on watering them. So why would we need to do more to protect our pots? Well, with temperatures low, evaporation is minimal and the soil might still be damp from the last watering. And if the soil is damp then the ceramic itself may have water in the pores too. Rain, snow and even frost can add water to both the soil and ceramic. So, if you want to enjoy your ceramic pots for years to come, consider taking some protective action now, before winter's coldest days come to stay awhile.

Most of us don't have room indoors for all of our flower pots. And many of these pots, even of modest size, can be too heavy to carry very far. So do the best you can without blowing out your back. Pots can be stored for the winter in the garage or under any covered shelter, even under the eves of your house, protected from the weather. Ideally, the soil should be removed from the pots before storage. (You can add this used potting mix in with your compost pile, and then augment your new potting soil with compost next spring when you are ready to plant again.)

If you are going to leave the pots outside where rain could blow into them, turn them upside down so there are no puddles of water inside. If the ground or concrete where you will store them gets wet from downspouts or rain, then stack your pots upside down on bricks, rocks, or pieces of lumber. This will keep the rims from absorbing water. With little effort, your clay pots will be waiting for you in the spring, ready to get down to the business of containing flowers all summer long.

Damp soil frozen inside of this ceramic pot split the pot in half. Also, freezing of water absorbed into the ceramic itself caused small slabs to flake off of the side.



Slabs of pottery flaking off the outside of this pot (*spalling*) caused by repeated freezing and expanding of the water absorbed into the porous ceramic.

Stacking empty ceramic pots under an eve and off of the ground keeps them relatively dry and protected from freeze damage.

*Reference above for Atlanta climate data- (SE Regional Climate Center- http://www.sercc.com/climateinfo/historical/mean32.html)